FEDERAL - STATE - PRIVATE

COOPERATIVE

SNOW SURVEY and WATER SUPPLY FORECASTS for MONTANA & NORTHERN WYOMING

UNITED STATES DEPARTMENT of AGRICULTURE···SOIL CONSERVATION SERVICE.
and
MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with the Bureau of Reclamation, U.S. Forest Service, U.S. Geological Survey, National Park Service, State Engineers of Montana and Wyoming and other Federal, State, and private organizations.

AS OF
APR. 1, 1960

MSDA SCS LINCOLN, NEBR. 1960

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

TO RECIPIENTS OF COOPERATIVE SNOW SURVEY AND WATER SUPPLY FORECAST REPORTS:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Fortunately, most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from fore-knowledge of the runoff.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, about 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

By relating snow survey measurements taken over a period of years to spring-summer runoff during the same period, relationships have been developed which make it possible to forecast seasonal runoff several months in advance of occurrence. In order to make a forecast, once a forecast relationship has been developed, the maximum snow water content at previously selected key snow courses is usually entered in the forecast relationship. More accurate forecasts are often obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast relationships.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions.

PUBLISHED BY SOIL CONSERVATION SERVICE

REPORTS	ISSUED	LOCATION	COOPERATING WITH
RIVER BASINS			
COLORADO AND STATE OF UTAH	MONTHLY (JAN.-MAY)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER AND OTHER AGENCIES
COLUMBIA AND STATES OF IDAHO AND ALASKA	MONTHLY (JAN.-MAY)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
UPPER MISSOURI AND STATE OF MONTANA	MONTHLY (FEB.-MAY)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
WEST-WIDE	OCT. 1, APR. 1, MAY 1	PORTLAND, OREGON	ALL COOPERATORS
STATES			
ARIZONA	SEMI-MONTHLY (JAN. 15 - APR. 1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOCIATION ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO	MONTHLY (FEB.-MAY)	FORT COLLINS, COLORADO	COLO. AGR. EXP. STATION COLO. STATE ENGINEER N. MEX. STATE ENGINEER
NEVADA	MONTHLY (FEB.-APR.)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN.-MAY)	PORTLAND, OREGON	ORE. AGR. EXP. STATION OREGON STATE ENGINEER
WASHINGTON	MONTHLY (FEB.-MAY)	SPOKANE, WASHINGTON	WASH. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB.-JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER

Copies of these various reports may be secured from: Head, Water Supply Forecasting Section
Soil Conservation Service
209 S. W. Fifth Ave., Portland 4, Oregon

PUBLISHED BY OTHER AGENCIES

REPORT	ISSUED	AGENCY
BRITISH COLUMBIA	MONTHLY (FEB.-JUNE)	COMPTROLLER, WATER RIGHTS BR., DEPT. OF LANDS AND FORESTS, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA	MONTHLY (FEB.-MAY)	CALIFORNIA DEPT. OF WATER RESOURCES, SACRAMENTO, CALIFORNIA

FEDERAL-STATE-PRIVATE COOPERATIVE

SNOW SURVEYS and WATER SUPPLY FORECASTS

for

MONTANA AND NORTHERN WYOMING

(Upper Missouri and Upper Columbia River Basins)

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U. S. Department of Agriculture
Soil Conservation Service
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MONTANA WATER SUPPLY OUTLOOK
as of
April 1, 1960

Statewide, the 1960 Water Supply Outlook for Montana is only FAIR. Exceptionally warm weather during the last two weeks of March removed most of the low elevation snow. This warm spell ripened the high elevation snow-pack for an early spring runoff. A cool May could retard the runoff to some extent.

High base flow in the streams during the winter and an above normal fall precipitation raised the forecasts that would otherwise be much lower.

Soil moisture throughout the State is exceptionally high for April first.

The Jefferson River is forecast at 91 percent average, with most of the water to come from the Big Hole River. The Madison River is forecast at 71 percent average and the Gallatin River is forecast at 74 percent average. Combined, these major streams will make close to 80 percent average flow down the Missouri River.

The Columbia River basin in Montana is covered with only a FAIR snow-pack--75 percent average. The South Fork of the Flathead River, below Hungry Horse Dam, is forecast at 79 percent average. The Flathead River at Columbia Falls is forecast to flow 1,819,000 acre feet during the April-September period, or 79 percent average. This is 40 percent LESS than last year. The Clark Fork River at Whitehorse Rapids, near Cabinet, is forecast to flow 10,676,000 acre feet of water during the April-September period. This figure is 77 percent average.

UPPER MISSOURI RIVER BASIN
SNOW SURVEY COURSES
IN
MONTANA & NORTHERN WYOMING

LEGEND
- TOWNS AND CITIES
- 1304 SNOW SURVEY COURSE
- 9GI IDAHO & WYOMING NUMBERS
- STREAM GAGING STATIONS

1960

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE
BOZEMAN MONTANA

SCALE IN MILES 60 30 0 60 100

I KOOTENAI
II FLATHEAD
III CLARK FORK
IV BLACKFOOT
V BITTERROOT
VI MARIAS
VII SUN
VIII BEAVERHEAD
IX MADISON
X UPPER MISSOURI
XI UPPER YELLOWSTONE

ST MARY
MILK
GALLATIN
JEFFERSON
RUBY
CLARK FORK (YELLOWSTONE RIVER)
RED LODGE
MUSSELSHELL
LOWER YELLOWSTONE
SHOSHONE
GREYBULL
BIG HORN
NOWOOD
POPO AGIE
TONGUE
POWDER
SHELL

IDAHO
MONTANA
WYOMING

INDEX TO MONTANA & NORTHERN WYOMING SNOW COURSES

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec.	Lat.	Twp.	Range Long.	Record Began	Measuring Dates	Measured By
JEFFERSON RIVER			MISSOURI RIVER DRAINAGE						
(ROCK-WATERHEAD)									
Lakeview Ridge	11E3	7600	27	1S	2W	1948		3,4,5	10
Lakeview Canyon	11E4	6930	26	1S	2W	1948		3,4,5	10
Limekiln	12E2	6950	5	1S	3W	1948		3,4	1
White Pine Ridge	12E1	8850	18	1S	3W	1948		3,4	1
(HORSE PRAIRIE)									
Bloody Dick	13D10	7600	12	6S	16W	1948		3,4	1
Cold Storm	13D9	8100	11	8S	16W	1948		3,4	1
Lemhi Pass	13E1	7480	9	10S	15W	1948		3,4	1
Terrell Creek	13D12	6850	14	9S	15W	1948		3,4	1
Trail Creek	13E2	7090	15	10S	15W	1948		3,4	1
Selway Junction	13D11	6800	27	8S	15W	1948		3,4	1
(BIG HOLE)									
Big Hole Pass	13D3	7240	28	3S	18W	1948		3,4	1
Big Hole Pass-Be.	13D4	6900	24	3S	18W	1948		3,4	1
East Boundary	13D5	6700	22	3S	17W	1948		3,4	1
Gibbons Pass	13D2	7100	4	2S	19W	1934		1,2,3,4,5	1,3
Jahnke Creek	13D8	7340	25	7S	16W	1948		3,4	1
Miner Forks	13D6	7300	24	6S	17W	1948		3,4	1
Miner Lake	13D7	6720	10	6S	16W	1945		3,4,5	1
(WISE RIVER)									
Anderson Mdw.	13D14	7000	18	3S	12W	1948		3,4	1
Elk Horn	13D15	8150	15	4S	12W	1935		3,4,5	3
Wise River	13D13	6300	15	2S	12W	1948		3,4	1
(JUDY RIVER)									
Flashlight	12D3	6950	22	8S	7W	1945		3,4,5	1
MADISON RIVER									
Hebgen	11E5	6850	22	11S	3E	1934		1,2,3,4,5	3
West Yellowstone	11E7	6700	34	13S	5E	1934		1,2,3,4,5	3
Norris Basin	10E2	7500	44°44'		110°42'	1936		3,4	6
GALLATIN RIVER									
Devil's Slide	10D4	8100	14	5S	6E	1935		2,3,4,5	2,1
Hood Meadow	10D3	6600	22	4S	6E	1935		2,3,4,5	2,1
New World	10D1	6700	24	3S	6E	1939		1,2,3,4,5	7
21-Mile	11E6	7150	1	11S	5E	1934		1,2,3,4,5	3
MISSOURI RIVER MAIN STEM									
Cheesman Reservoir	12C5	6200	2	8N	5W	1936		1,2,3,4,5	3
Crystal Lake	9C1	6100	19	12N	18E	1941		3,4	1,2
Grasshopper	10C2	7000	19	9N	8E	1938		3,4	2
Kings Hill	10C1	7950	35	13N	7E	1934		3,4,5	3
Picnic Grounds	12C6	6500	10	5N	6W	1941		2,3,4	4
Pipestone Pass	12C1	7200	10	1N	7W	1938		2,3,4,5	1
Steeple Pass	12C1	6900	16	13N	7W	1934		3,4,5	3
Ten Mile Creek L	12C2	6250	13	8N	6W	1935		1,2,3,4,5	3
Ten Mile Creek M	12C3	6800	13	8N	6W	1934		1,2,3,4,5	3
Ten Mile Creek U	12C4	8000	19	8N	5W	1935		1,2,3,4,5	3
(TETON RIVER)									
Freight Creek	12A1	6000	13	26N	10W	1948		3,4	1
Waldron Creek	12B2	5600	16	25N	9W	1948		3,4	1
West Fork	12B1	6000	6	25N	9W	1948		3,4	1
(SUN RIVER)									
Benchmark	12B8	5500	9	20N	10W	1948		3,4	1
Cabin Creek	12B6	5400	33	23N	10W	1949		3,4	1,2
S-Bull	12B9	5600	36	20N	10W	1948		3,4	1,2
Gates Park	12B5	5300	31	24N	10W	1949		3,4	1,2
Goat Mountain	12B7	7000	20	22N	10W	1934		3,4	3
Wrong Ridge	12B3	6800	17	25N	10W	1949		3,4	1,2
Wrong Creek	12B4	5700	32	25N	10W	1949		3,4	1,2
(MARIAS RIVER)									
Marias Pass	13A5M	5250	34	30N	14W	1934		1,2,3,4,5	3
(MILK RIVER)									
Rocky Boy	9A1	5200	15	28N	16E	1941		3,4	7
(MUSSELSHELL RIVER)									
Grasshopper	10C2	7000	19	9N	8E	1938		3,4	2

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec.	Lat.	Twp.	Range Long.	Record Began	Measuring Dates	Measured By
MISSOURI RIVER DRAINAGE (cont.)									
(UPPER YELLOWSTONE)									
Camp Senia	9D1	7890	2		8S	18E	1937	4	1
Canyon	10E3	7750	44°-44'			110°-30'	1938	1,2,3,4,5	6
Cooke City	10D7	7400	25		9S	14E	1937	1,2,3,4,5	6
Crevice Mt.	10D5	8400	22		9S	9E	1935	3,4	2
Independence	10D6	8000	22		7S	12E	1940	3,4	1
Lake Camp	10E4	7850	44°-34'			110°-24'	1936	1,2,3,4,5	6
Lupine Creek	10E1	7300	44°-54'			110°-37'	1938	1,2,3,4,5	6
Lodgepole	9E1	8200	32		5SN	106W	1940	2,3,4,5	1,4
West Rosebud	9D2	7500	10		7S	16E	1940	1,2,3,4,5	4
(SHIELDS RIVER)									
Porcupine	10C3	6500	10		4N	10E	1938	3,4	1
LOWER YELLOWSTONE									
(WIND RIVER) Wyoming									
Big Warm	9F12	8800	36		42N	109W	1955	2,3,4,5	1
Brooks Lake #3	10F8	9200	23		44N	110W	1939	2,3,4,5	1
Burroughs Creek	9F4	8800	15		43N	107W	1948	2,3,4,5	1
Dinwoodie	9F10	10000	21		39N	105W	1948	2,3,4,5	1
Dry Creek	9F9	9500	34		4N	6W	1948	2,3,4,5	1
DuNoir	9F6	8750	27		42N	108W	1940	2,3,4,5	1
East Fork	9F13	9200	23		44N	104W	1956	2,3,4,5	1
Geyser Creek	9F7	8500	12		41N	108W	1948	2,3,4,5	1
Little Warm	9F8	9500	24		41N	108W	1948	2,3,4,5	1
Sheridan R.S. #1	9F5	7500	3		42N	109W	1939	2,3,4,5	1
Sheridan R.S. #2	9F14	7500	3		42N	109W	1955	2,3,4,5	1
T-Cross Ranch	9F3	8000	1		43N	107W	1940	2,3,4,5	1
Togwotee Pass	10F9	9600	29		44N	110W	1936	2,3,4,5	11
(POPO AGIE RIVER) Wyoming									
Blue Ridge	8G2	9500	23		31N	101W	1939	2,3,4,5	1
Bruce's Camp	8G5	6500	24		32N	101W	1955	2,3,4	1
Hobb's Park	9G3	10000	22		2S	3W	1948	2,3,4,5	1
Mosquito Park R.S.	9G4	9500	23		2S	3W	1940	2,3,4,5	1
Sawmill Glade	8G1	8500	3		31N	101W	1939	2,3,4,5	1
South Pass	8G3	9000	13		30N	101W	1939	2,3,4,5	1
St. Lawrence	9F11	9000	26		1N	4W	1940	2,3,4,5	1
Trout Creek	9G2	8400	5		2S	2W	1948	2,3,4,5	1
(OWL CREEK) Wyoming									
Beavers Mill	9F2	8900	6		43N	102W	1948	2,3,4,5	1
Owl Creek	8F1	8700	36		43N	101W	1948	2,3,4,5	1
(GREYBULL RIVER) Wyoming									
Timber Creek #1	9E2	8800	25-		47N	103W	1948	2,3,4,5	1
Timber Creek #2	9E3	8800	25		47N	103W	1955	2,3,4,5	1
Wood River #1	9F1	8000	28		46N	103W	1939	2,3,4,5	1
Wood River #2	9F15	8000	28		46N	103W	1956	2,3,4,5	1
(SHOSHONE RIVER) Wyoming									
East Entrance	10E6	7000	17		52N	109W	1948	1,2,3,4,5	6
Sylvan Pass	10E5	7100	12		52N	110W	1936	1,2,3,4,5	6
(HOWOOD CREEK) Wyoming									
Cold Springs Camp	7E25	8700	1		50N	88W	1956	2,3,4,5	1
Medicine Lodge Lks	7E24	9500	7		51N	87W	1956	2,3,4,5	1
Hunkers Pass	7E8	9700	11		48N	85W	1950	2,3,4,5	1
North Powder	7E36	8300	20		47N	85W	1956	2,3,4,5	1
Onion Gulch	7E27	8100	31		48N	85W	1956	2,3,4,5	1
Tensleep Lake	7E26	9075	33		50N	86W	1956	2,3,4,5	1
Tensleep R.S.	7E7	8300	30		49N	86W	1935	2,3,4,5	1
Tyrell R.S.	7E35	8300	30		49N	86W	1956	2,3,4,5	1
(SHELL CREEK) Wyoming									
Bald Mountain	7E21	9600	33		56N	91W	1956	2,3,4,5	1
Beaver-Tongue Div.	7E20	9200	12		55N	91W	1956	2,3,4,5	1
Bone-Spring Div.	7E18	9200	32		55N	89W	1956	2,3,4,5	1
Granite Creek Camp	7E22	7800	15		53N	89W	1956	2,3,4,5	1
Granite Pass	7E17	8950	19		54N	88W	1956	2,3,4,5	1
Horse-Trail Div.	7E19	9200	29		55N	90W	1956	2,3,4,5	1
Ranger Creek	7E4	8800	32		53N	88W	1935	2,3,4,5	1
Shell Creek	7E23	9600	12		52N	88W	1956	2,3,4,5	1
(PORCUPINE CREEK) Wyoming									
Five Spgs. Falls	7E31	7500	19		56N	92W	1956	2,3,4,5	1
Medicine Wheel	7E30	9000	24		56N	92W	1956	2,3,4,5	1
(TONGUE RIVER) Wyoming									
Beaver Tongue Div.	7E20	9200	12		55N	91W	1956	2,3,4,5	1
Big Goose #1	7E2	7700	4		53N	86W	1935	2,3,4,5	1
Big Goose #2	7E32	7700	4		53N	86W	1955	2,3,4,5	1
Bone-Spring Div.	7E18	9200	32		55N	89W	1956	2,3,4,5	1
Burgess R.S. #1	7E1	7900	36		56N	89W	1950	2,3,4,5	1
Burgess R.S. #2	7E33	7900	36		56N	89W	1955	2,3,4,5	1
Dome Lake #1	7E3	8800	11		53N	87W	1950	2,3,4,5	1
Dome Lake #2	7E34	8800	11		53N	87W	1950	2,3,4,5	1
Gloom Creek	7E14	9300	32		55N	87W	1956	2,3,4,5	1
Granite Pass	7E17	8950	19		54N	88W	1956	2,3,4,5	1

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec.	Lat.	Twp.	Range Long.	Record Began	Measuring Dates	Measured By
MISSOURI RIVER DRAINAGE (cont.)									
(TONGUE RIVER cont.)									
Horse Trail Div.	7E19	9200	29		55N	90W	1956	2,3,4,5	1
Lake Geneva	7E16	9000	7		52N	86W	1956	2,3,4,5	1
North Tongue	7E15	8800	17		55N	89W	1956	2,3,4,5	1
Sibley Lake	7E11	8000	10		55N	88W	1956	2,3,4,5	1
Sucker Creek	7E12	9000	19		55N	87W	1956	2,3,4,5	1
Steamboat Point	7E10	7500	32		56N	87W	1956	2,3,4,5	1
Wood Rock O.S.	7E13	8500	3		54N	88W	1956	2,3,4,5	1
(POWDER RIVER) Wyoming									
Crazy Woman	6E2	8200	6		47N	84W	1956	2,3,4,5	1
Muddy Creek O.S.	6E1	7800	2		48N	84W	1956	2,3,4,5	1
Munkers Pass	7E8	9700	11		48N	85W	1950	2,3,4,5	1
North Powder #2	7E36	8300	20		47N	85W	1956	2,3,4,5	1
Onion Gulch	7E27	8100	31		48N	85W	1956	2,3,4,5	1
Soldier Park	7E5	8700	36		51N	85W	1950	2,3,4,5	1
Sour Dough	7E6	8500	17		49N	84W	1936	2,3,4,5	1
COLUMBIA RIVER BASIN									
KOOTENAI RIVER									
Baree Creek	15B11	5500	6		25N	30W	1956	4,5,5½	2
Baree Mountain	15B1	6000	1		25N	31W	1937	4,5,5½	2
Red Mountain	15A1	6000	4		36N	29W	1937	3,4,5,5½	1,2
Weasel Divide	14A7	5450	8		37N	24W	1955	4,5,5½	1,2
FLATHEAD RIVER									
Basin Creek	13B11A	5000	11		19N	12W	1951	2,3,4,5	2
Big Creek	13B3	6750	647		22N	18W	1941	3,4,5	5
Brush Creek	14A4	5000	13		30N	26W	1937	3,4,5	1,2
Cattle Queen	13A1	4700	7		35N	17W	1939	3,4,5	6
Desert Mountain	13A2M	5600	24		31N	19W	1937	1,2,3,4,5	1,2
Hell Roaring Div.	14A3	5770	35		32N	22W	1942	3,4,5	1,2
Holbrook	13B13A	4530	18		21N	13W	1951	1,2,3,4,5	2
Kishenehn	14A6	3886	14		37N	22W	1954	4,5	6
Logan Creek	14A5	4300	34		30N	24W	1937	3,4,5	2
Marias Pass	13A5M	5250	34		30N	14W	1934	1,2,3,4,5	3
Mineral Creek	13A16	4000	29		35N	17W	1957	3,4,5	6
Quintonkon	13A13	3800	11		26N	17W	1951	2,3,4,5	1,2
Spotted Bear Mt.	13B2M	7000	23		25N	15W	1948	3,4,5	1,2
Strawberry Lake	13A10	6500	11		28N	19W	1948	3,4,5	2
Trinkus Lake	13B1	6500	9		25N	17W	1948	3,4,5	2
Trout Lake	13A12M	3600	21		28N	17W	1948	3,4,5	1,2
Twin Creeks	13B11	3580	14		26N	16W	1951	2,3,4,5	1,2
Upper Holland Lk.	13B5	7000	28		20N	16W	1948	3,4,5	2
CLARK FORK									
Baree Creek	15B11	5500	6		25N	30W	1956	4,5,5½	2
Baree Mountain	15B1	6000	1		25N	31W	1937	4,5,5½	2
Black Pine	13C13	7100	25		8N	15W	1960	3,4,5	1
Coyote Hill	13B10	4200	12		18N	16W	1952	1,2,3,4,5	2
El Dorado Mine	13C9	7800	23		8N	17W	1949	4	1
Fred Burr Pass	13C11	8000	12		6N	13W	1957	3,4,5	1
Freezeout Summit	15B10	6800	21		15N	27W	1937	4,5	2
Gold Creek Lk.	13C10	7200	14		8N	12W	1949	4	1
Hoodoo Creek	15C1	6200	9		14N	27W	1937	4,5	2
Intergaard	13C4	6450	6		5N	13W	1936	2,3,4	4
Lubrecht Forest #6	13C8	4400	11		14N	15W	1951	1,2,3,4,5	12
North Fork Jocko	13B7	6330	3		17N	17W	1941	3,4,5	5
Pipestone Pass	12D1	7200	10		1N	7W	1938	2,3,4,5	1
Red Lion	13C12	7000	27		6N	13W	1958	3,4,5	1
Slide Rock Mt.	13C2	7100	35		10N	16W	1937	4	1
Southern Cross	13C5	6500	8		5N	13W	1936	2,3,4	4
Steeple Pass	12C1	6900	16		13N	7W	1934	3,4,5	3
Storm Lake	13C7	7780	19		4N	13W	1939	2,3,4	1
Stuart Mill	13C6	6500	19		5N	13W	1936	2,3,4	4
Stuart Mountain	13C1	7400	6		14N	18W	1936	4	1,2
TV Mountain	14B1	6800	33		15N	19W	1956	1,2,3,4,5	1
BITTERROOT RIVER									
Ambrose	13C16	6475	28		9N	18W	1960	3,4,5	1
East Fork R.S.	13D1	5400	16		2N	17W	1937	4	1
Gibbons Pass	13D2	7100	4		2S	19W	1934	1,2,3,4,5	3,1
Lolo Pass	14C5	5230	16		38N	15E	1956	3,4,5,5½	2
Lost Horse	14C7	5940	5		4N	23W	1960	3,4,5	1
Nez Perce Camp	14D2	5580	19420		1S	23W	1937	3,4,5	1
Nez Perce Pass	14D1	6575	32		28N	17E	1937	1,2,3,4,4½,5,5½	1
Powell R.S.	14C6	4230	33		37N	14E	1956	3,4,5,5½	2
Skalkaho Summit	13C3	7259	30		6N	17W	1937	4	1
Twin Lakes	14C8	6510	32		5N	23W	1960	3,4,5	1
SASKATCHEWAN RIVER BASIN									
ST. MARY RIVER									
Iceberg Lake #3	13A3	5600	48°-50'			113°-43'	1922	5	
Josephine Upper	13A15	5000	48°-50'			113°-42'	1956	5	3,9
Josephine Lower #9	13A14	4900	48°-47'			113°-41'	1955	5	
Mount Allen #7	13A7	5700	48°-46'			113°-41'	1922	5	3,9
Piegan #6	13A6	5500	48°-46½'			113°-41½'	1922	5	3,9
Ptarmigan #8	13A8	5800	48°-50'			113°-44'	1937	5	3,9

a. Numerals 1,2,3,4 and 5 refer to January 1, February 1, March 1, April 1 and May 1.

b. Numerals refer to Agency that secures the snow survey as follows:

1. Soil Conservation Service
2. U. S. Forest Service
3. U. S. Geological Survey
4. Montana Power Company
5. U. S. Indian Service
6. National Park Service
7. Montana Experiment Station
8. City of Bozeman
9. Dominion Water & Power Bureau
10. U. S. Fish and Wildlife Service
11. U. S. Bureau of Reclamation
12. Montana State Forestry School

H - Soil Moisture
A - Aerial Marker

5,M-11,464 - (1960)

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

Summary of Snow-Survey Data by Tributary Watersheds April 1, 1960

TRIBUTARY WATERSHED	No. of Courses Averaged	No. Years Used	1960 Snow Water Equivalent Expressed as Percent of	
			1959	Average
COLUMBIA RIVER BASIN IN MONTANA				
Kootenai above Libby	14	7-15	73	74
Flathead	21	7-15	71	87
Lower Clark Fork	9	7-15	68	74
Upper Clark Fork	15	6-15	63	66
Bitterroot	9	14-15	72	66
MISSOURI RIVER BASIN IN MONTANA				
Marias, Teton & Sun	11	9-15	47	50
Missouri Main Stem	7	14-15	63	74
Beaverhead-Jefferson	31	10-15	72	63
Madison-Gallatin	10	12-15	68	62
Judith-Musselshell	5	15	74	86
Upper Yellowstone	16	9-15	63	65

AVAILABLE SOIL MOISTURE
as of
April 1, 1960

Drainage Basin and Station	Station No.	Elev.	Soil Profile in Inches		Date	Soil Moisture Content in Inches About 4/1/60				Yrs
			Depth	Cap.		1960	1959	1958	Avg.	
GALLATIN										
College Site	11D2M	4856	54	14.5	4/1	12.6	11.6	8.2	9.6	3
FLATHEAD										
Marias Pass	13A5M	5250	54	8.4	3/26	6.6	6.7	5.7	6.2	6
Spotted Bear R.S.	13B15M	3700	28	5.9	3/29	5.3	5.3	5.1	5.4	3
Trout Lake	13A12M	3600	54	11.8	3/28	12.5	12.0	12.5	12.4	3

AVAILABLE SOIL MOISTURE
as of
October 1, 1959

						1959	1958	1957	Avg.	
GALLATIN										
College Site	11D2M	4856	54	14.5	10/2	8.6	6.8	4.4	5.8	4
FLATHEAD										
Marias Pass	13A5M	5250	54	8.4	10/1	5.6	4.5	3.4	4.5	5
Spotted Bear R.S.	13B15M	3700	28	5.9	9/29	4.3	3.7	1.2	2.7	3
Trout Lake	13A12M	3600	54	11.8	9/29	9.8	10.5	2.1	7.2	3

WATER SUPPLY OUTLOOK

KOOTENAI RIVER BASIN

MONTANA

AS OF:

APRIL 1, 1960

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

Snow Survey measurements made on or about April first in the Kootenai River basin indicate the water stored in the snow-pack is less than was measured on or about March first at a majority of the snow courses. Water content as of April first at snow courses in the Kootenai basin is 73 percent of last year and 74 percent of the 1943-57 average.

Stream flow for the Kootenai River basin is forecast to be about 10 percent less than average. April through September runoff at Libby is forecast at 6,896,000 acre feet. Tributary streams in the northern portion of the drainage should flow 10 to 15 percent below average; those in the southern portion should flow about 25 percent below average.

Report Prepared by

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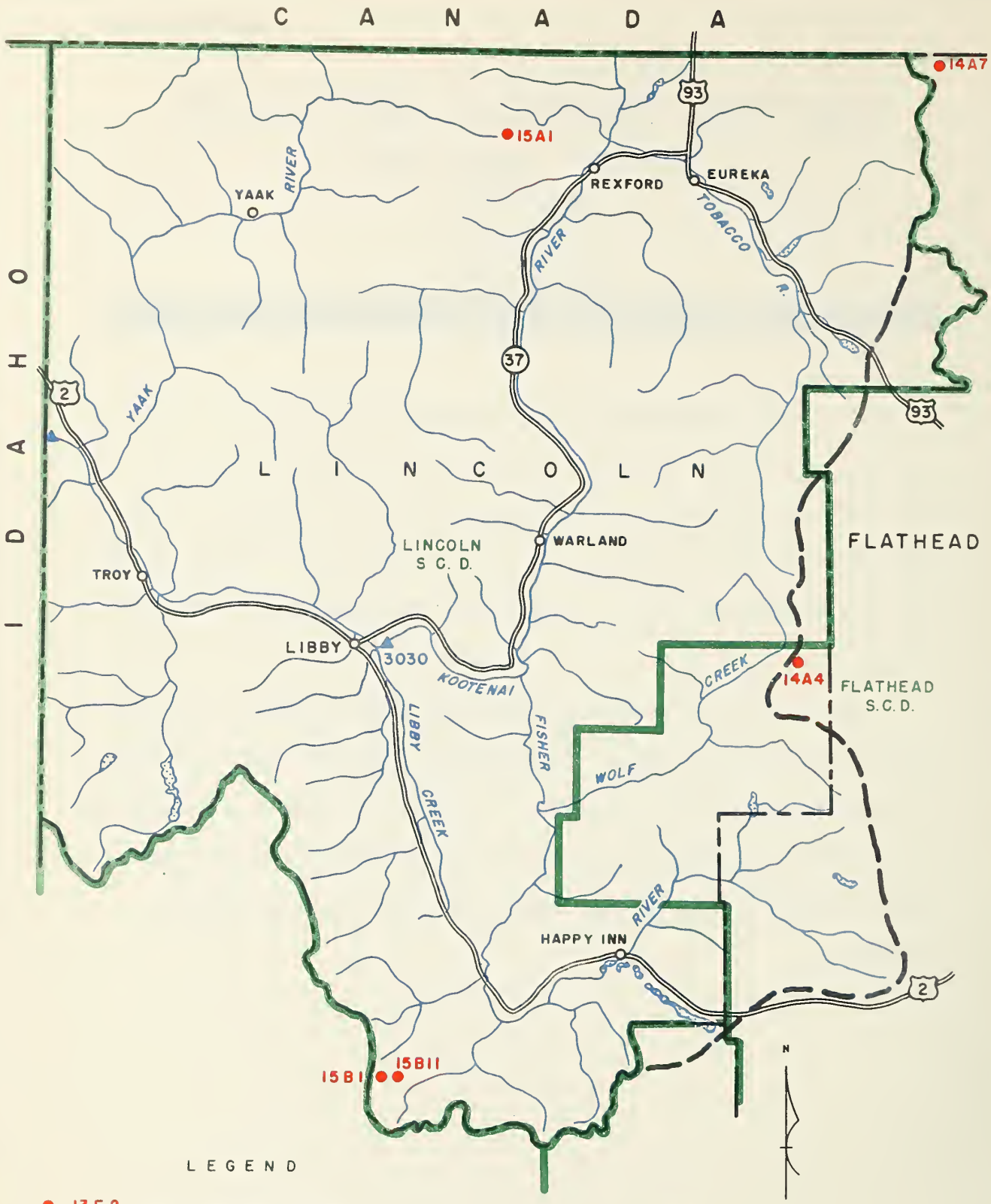
THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,507.1



USDA-SCS-LINCOLN NEBR 1960

5,L-16,507.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1960 - WATERSHED I

(1000 Acre Feet)

FORECAST POINT		FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED +	
NO.	NAME				LAST YEAR	NORMAL
	KOOTENAI RIVER					
3030	Libby (at)	Apr-Sept	6896	89	9820	7722
		Apr-July	5958	89	8088	6694
3050	Leonia (at)	Apr-Sept	8300	93	10969	8907
		Apr-July	8520	93	9162	7818

(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED		
			THIS YEAR	LAST YEAR	NORMAL

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

SNOW SURVEY DATA

AS OF APRIL 1, 1960 WATERSHED I

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS OF RECORD
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE	
15B11	Baree Creek	5500	4/1	106	36.7	57.2	-	-
15B1	Baree Mountain	6000	4/1	104	36.0	54.3	46.4	15
14A4	Brush Creek	5000	3/24	35	11.1	14.8	15.2	9
Can 10	Fernie	3500	4/1	17	4.3	8.4	8.4	15
Can 12A	Field	4200	3/30	11	3.4	8.1	5.2	15
Can 43	Gray Creek	5100	3/26	53	17.1	18.7	20.6	10
Can 33	Kicking Horse	5400	3/31	40	11.2	17.6	15.0	11
Can 20B	Kimberley	3800	3/31	15	4.4	6.7	6.8	15
Can 32	Marble Canyon	5000	3/30	38	7.1	13.5	14.9	11
Can 10A	New Fernie	4100	4/1	36	9.4	15.2	16.6	7
15A1	Red Mountain	6000	3/22	56	18.2	20.2	21.5	15
Can 8A	Sinclair Pass	4500	3/30	18	4.1	4.7	6.0	15
Can 20A	Sullivan Mine	5100	3/31	41	12.2	14.6	16.0	12
Can 41	Upper Elk River	4400	3/30	13	3.1	7.7	9.3	10
14A7	Weasel Divide	5450	3/23	87	31.5	33.9	33.4	15

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

WATER SUPPLY OUTLOOK

FLATHEAD RIVER BASIN

MONTANA

AS OF:

APRIL 1, 1960

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

Snow Surveys made in the Flathead River basin on or about the first of April indicate the water stored in the snow-pack is about 30 percent below that of April first last year and 87 percent of the 1943-57 average.

Streamflow in the drainage is forecast at about 10 to 20 percent below average. The South Fork of the Flathead near Columbia Falls is expected to flow 1,819,000 acre feet during the April through September period. This is about 40 percent less than last year. The North Fork of the Flathead should flow about 25 percent less than last year, with the Middle Fork of the Flathead producing 65 percent of last year's flow.

Ungaged tributary streams in the basin should flow 60 to 70 percent of last year.

Reservoir storage is above average in both power and irrigation reservoirs.

Report Prepared by

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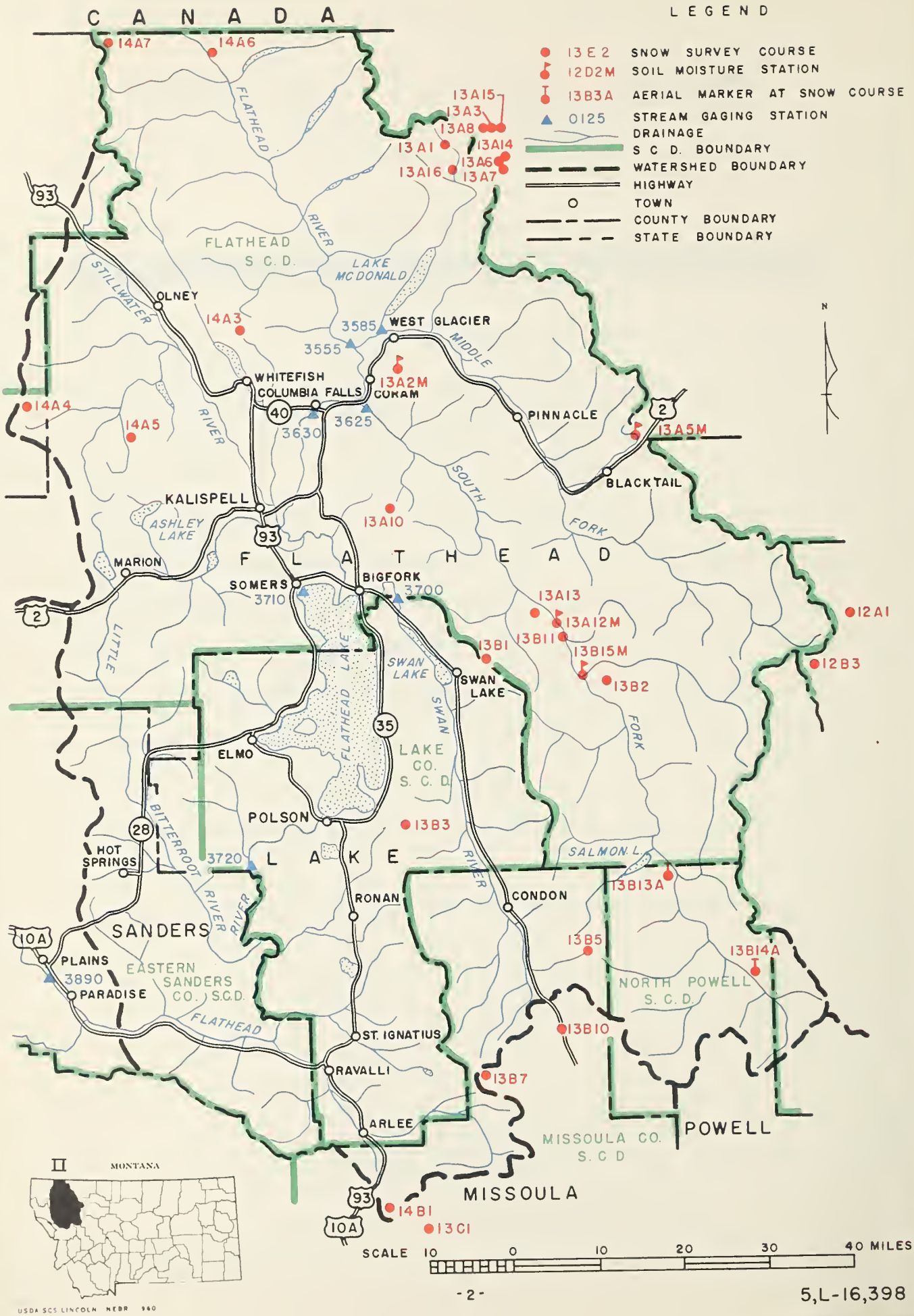
THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,398.1


CANADA
LEGEND
13E2 SNOW SURVEY COURSE
12D2M SOIL MOISTURE STATION
13B3A AERIAL MARKER AT SNOW COURSE
0125 STREAM GAGING STATION
DRAINAGE
S C D. BOUNDARY
WATERSHED BOUNDARY
HIGHWAY
TOWN
COUNTY BOUNDARY
STATE BOUNDARY
14A7
14A6
13A15
13A3
13A8
13A1
13A14
13A6
13A7
13A16
FLATHEAD
RIVER
FLATHEAD S C D.
LAKE MC DONALD
STILLWATER
OLNEY
14A3
3585
WEST GLACIER
3555
MIDDLE
WHITEFISH
COLUMBIA FALLS
13A2M
CORAM
14A4
14A5
3630
3625
PINNACLE
13A5M
BLACKTAIL
KALISPELL
ASHLEY LAKE
13A10
SOUTH FORK
MARION
F L A T H E A D
SOMERS
3710
BIGFORK
3700
13A13
13A12M
13B11
12A1
12B3
13B1
13B15M
13B2
SWAN LAKE
SWAN LAKE
SWAN
FORK
LITTLE
FLATHEAD LAKE
ELMO
LAKE CO. S. C. D.
POLSON
13B3
HOT SPRINGS
3720
L A K E
BITTERROOT RIVER
SALMON L.
13B13A
RONAN
CONDON
SANDERS
PLAINS
3890
PARADISE
EASTERN SANDERS CO. S.C.D.
13B5
13B14A
NORTH POWELL S. C. D.
FLATHEAD
ST. IGNATIUS
13B10
RAVALLI
13B7
ARLEE
MISSOULA CO. S. C D
POWELL
MISSOULA
14B1
13C1
MONTANA
SCALE 10 0 10 20 30 40 MILES
USDA SCS LINCOLN NEBR 960

5,L-16,398

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1960 - WATERSHED II

(1000 Acre Feet)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED + LAST YEAR	MEASURED + NORMAL
	NORTH FORK FLATHEAD RIVER					
3555	Columbia Falls (near)	Apr-Sept	1679	86	2378	1942
		Apr-July	1553	88	2103	1769
		Apr-June	1312	88	1766	1491
	MIDDLE FORK FLATHEAD RIVER					
3585	West Glacier (near)	Apr-Sept	1514	80	2361	1881
		Apr-July	1411	81	2156	1747
		Apr-June	1200	81	1796	1480
	SOUTH FORK FLATHEAD RIVER					
3625	Columbia Falls (nr)(17)	Apr-Sept	1819	79	3166	2297
		Apr-July	1755	80	2955	2180
		Apr-June	1520	80	2515	1900
	FLATHEAD RIVER					
3630	Columbia Falls (at)(17)	Apr-Sept	5148	82	7921	6299
		Apr-July	4793	82	7249	5845
		Apr-June	4109	82	6071	4993
3720	Polson (near) (18)	Apr-Sept	6089	82	9801	7462
		Apr-July	5716	82	8906	6939
		Apr-June	4868	82	7464	5897
	SWAN RIVER					
3700	Big Fork (near)	Apr-Sept	577	90	997	641
		Apr-July	521	92	864	568
		Apr-June	414	90	672	460

(17) Observed flow plus change in storage in Hungry Horse Reservoir.
(18) Observed flow plus change in storage in Hungry Horse Reservoir and Flathead Lake.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1960

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED THIS YEAR	MEASURED LAST YEAR	MEASURED NORMAL
3620	Hungry Horse	3428.0	2841.0	2286.0	2022.0
3710	Flathead	1791.0	867.8	883.4	628.8
3757	Camas	42.8	37.3	28.9	26.5
3800	Mission Valley	98.6	53.0	34.2	38.6
3805	Lower Jocko Lake	7.6	1.4	Snowbound	

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

USDA SCS LINCOLN NEBR 1960

5,L-16,395.1

SNOW SURVEY DATA

AS OF

APRIL 1, 1960

WATERSHED II

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS OF RECORD
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE	
13B14A	Basin Creek	5000	4/3	10	6.2	9.1	10.0	7
14B3	Bassoo Creek	4400	3/16	38	10.0	-	-	-
13B3	Big Creek	6750	3/30	111	45.8	60.8	43.4	15
14A4	Brush Creek	5000	3/24	35	11.1	14.8	15.2	9
13A1	Cattle Queen	4700	4/2	74	27.7	34.4E	34.4	15
13A2M	Desert Mountain	5600	3/25	46	15.9	17.6	16.6	15
Can 10	Fernie	3500	4/1	17	4.3	8.4	8.4	15
14A9	Griffin Creek Divide	5100	3/15	46	11.8	-	-	-
14A3	Hell Roaring Divide	5770	3/21	88	33.2	32.5	31.2	15
13B13A	Holbrook	4530	4/3	15	6.6	11.8	10.4	7
14A6	Kishenehn	3886	3/28	25	6.9	8.9	10.8	15
14A5	Logan Creek	4300	3/24	24	5.7	11.1	9.8	15
13A5M	Marias Pass	5250	4/2	37	12.5	21.1	20.3	15
13A16	Mineral Creek	4500	4/2	53	20.2	23.3	-	-
Can 10A	New Fernie	4100	4/1	36	9.4	15.2	16.6	7
13B7	North Fork Jocko	6330	3/31	101	40.8	62.4	44.4	15
13A13	Quintonkon	3800	3/30	35	12.0	20.2	14.9	7
13B2	Spotted Bear Mountain	7000	3/29	34	12.0	21.1	16.0	10
13A10	Strawberry Lake	6500	3/31	112	48.6	56.7	44.0	10
13B1	Trinkus Lake	6500	3/31	108	40.1	69.4	42.4	10
13A12M	Trout Lake	3600	3/28	35	14.3	17.8	17.8	10
14B1	TV Mountain	6800	4/3	44	12.3	22.0	-	-
13B11	Twin Creeks	3580	3/28	26	9.5	15.6	10.6	7
13B5	Upper Holland Lake	7000	3/31	84	27.6	48.9	37.6	9
14A7	Weasel Divide	5450	3/23	87	31.5	33.9	33.4	15

E Estimated water content.

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS LINCOLN NEBR 1960

5,L-16,395.2

WATER SUPPLY OUTLOOK

LOWER CLARK FORK RIVER BASIN

MONTANA

AS OF:

APRIL 1, 1960

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for 1960 on the Clark Fork River is only FAIR. Streamflow forecasts for the April-September period range from 78 to 68 percent average. A comparison with last year's flow indicates that the 1960 flow will be 32 to 40 percent less than last year.

Snow Surveys made on or about April first indicate a very low streamflow this season; however, the above normal precipitation this past fall, together with a high base flow during the winter, has raised streamflow percent average above the percent average indicated by the snow-pack.

Detail forecast volumes and comparisons with the 1943-57 average are shown on Page 3 opposite the map of the Lower Clark Fork Watershed III.

Soil moisture beneath the snow-pack is above average.

Reservoir storage in Flathead Lake and Hungry Horse Reservoir is above the April first average.

Report Prepared by

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THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,506.1

USDA SCS-LINCOLN, NEBR 1960

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1960 - WATERSHED III

(1000 Acre Feet)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED + LAST YEAR	MEASURED + NORMAL
	BLACKFOOT RIVER					
3400	Bonner (near)	Apr-Sept	745	74	1338	999
		Apr-July	665	73	1214	903
		Apr-June	541	70	1050	775
	CLARK FORK RIVER					
3404	Milltown (above) (14)	Apr-Sept	533	65	696	815
		Apr-July	452	63	610	716
		Apr-June	388	64	516	609
3405	Missoula (above)	Apr-Sept	1278	70	2034	1814
		Apr-July	1117	69	1824	1620
		Apr-June	928	67	1566	1384
3530	Missoula (below)	Apr-Sept	2300	68	3709	3361
		Apr-July	2045	67	3331	3059
		Apr-June	1693	65	2885	2608
3545	St. Regis (at)	Apr-Sept	3061	67	5135	4549
		Apr-July	2728	66	4634	4140
		Apr-June	2254	63	4023	3551
3890	Plains (near) (18)	Apr-Sept	9478	77	15427	12330
		Apr-July	8718	77	13965	11308
		Apr-June	7280	76	11859	9617
3910	Thompson Falls (at)(18)	Apr-Sept	10112	78	16323	13017
		Apr-July	9300	78	14806	11944
		Apr-June	7780	77	12472	10156
3920	Whitehorse Rapids (at)(19)	Apr-Sept	10676	77	11454#	13932
		Apr-July	9816	77	10579#	12763
		Apr-June	8193	76	9712#	10816

(14) Difference in observed flow, Clark Fork above Missoula & Blackfoot at Bonner.
(18) Observed flow plus change in storage in Flathead Lake & Hungry Horse Res.
(19) Observed flow plus change in storage in Hungry Horse Reservoir, Flathead Lake and Noxon Reservoir.
(#) 1958 data; 1959 data not available.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1960

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED THIS YEAR	MEASURED LAST YEAR	MEASURED NORMAL
3913	Noxon	200.1	179.0	0	-

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

SNOW SURVEY DATA

AS OF APRIL 1, 1960

WATERSHED III

SNOW COURSE NO.	NAME	ELEVATION	CURRENT INFORMATION: DATE OF SURVEY	CURRENT INFORMATION: SNOW DEPTH (Inches)	CURRENT INFORMATION: WATER CONTENT (Inches)	PAST RECORD: WATER CONTENT (Inches) LAST YEAR	PAST RECORD: WATER CONTENT (Inches) AVERAGE	YEARS OF RECORD
15B11	Baree Creek	5500	4/1	106	36.7	57.2	-	-
15B1	Baree Mountain	6000	4/1	104	36.0	54.3	46.4	15
13B10	Coyote Hill	4200	3/31	27	8.4	12.4	11.2	11
15C2	Fish Lake Airstrip	5000	4/3	89	33.8	41.7	41.5	5
15B10	Freezeout Summit	6800	4/4	69	25.8	37.0	36.8	15
15C1	Hoodoo Creek	6200	4/4	97	37.4	56.1	53.2	15
14C5	Lolo Pass	5230	3/24	67	24.8	32.0	36.7	14
15B2	Lookout	5250	3/30	86	28.5	39.8	38.7	15
13C8	Lubrecht Forest #6	4040	4/1	0	0	2.2	3.7	7
13B7	North Fork Jocko	6330	3/31	101	40.8	62.4	44.4	15
14C6	Powell R. S.	4230	3/24	35	12.0	11.4	-	-
14C4	Savage Pass	6600	3/25	60	21.2	29.4	30.3	14
14B1	TV Mountain	6800	4/3	44	12.3	22.0	-	-

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS LINCOLN NEBR 1960

5,L-16,395.2

WATER SUPPLY OUTLOOK

UPPER CLARK FORK RIVER BASIN

MONTANA

AS OF:

APRIL 1, 1960

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The 1960 Water Supply Outlook for the Upper Clark Fork River is only FAIR. Snow Surveys made on or about April first at 15 courses in higher elevations of this basin indicate that this year's snow-pack is 37 percent less than last year's snow-pack, and 66 percent of the 1943-57 average.

Streamflow forecast figures are shown in detail on page 3 of this report, opposite the map, for Flint Creek at Maxville, Middle Fork Rock Creek, Boulder River at Maxville, and the Clark Fork above Milltown. Note that the percent average flow is exceedingly low on all streams. Boulder Creek is forecast at 85 percent average and is probably the best local outlook.

Fall precipitation was above average; base flow in all streams during the fall and winter months was high. This combination should produce a higher streamflow than is indicated by the snow-pack.

Ungaged streams, Race Track Creek and Dempsey Creek, should flow about 37 percent less than last year.

Judging from weather conditions this spring, it is anticipated that runoff will be early this year. A cold May could reverse this prediction.

Report Prepared by

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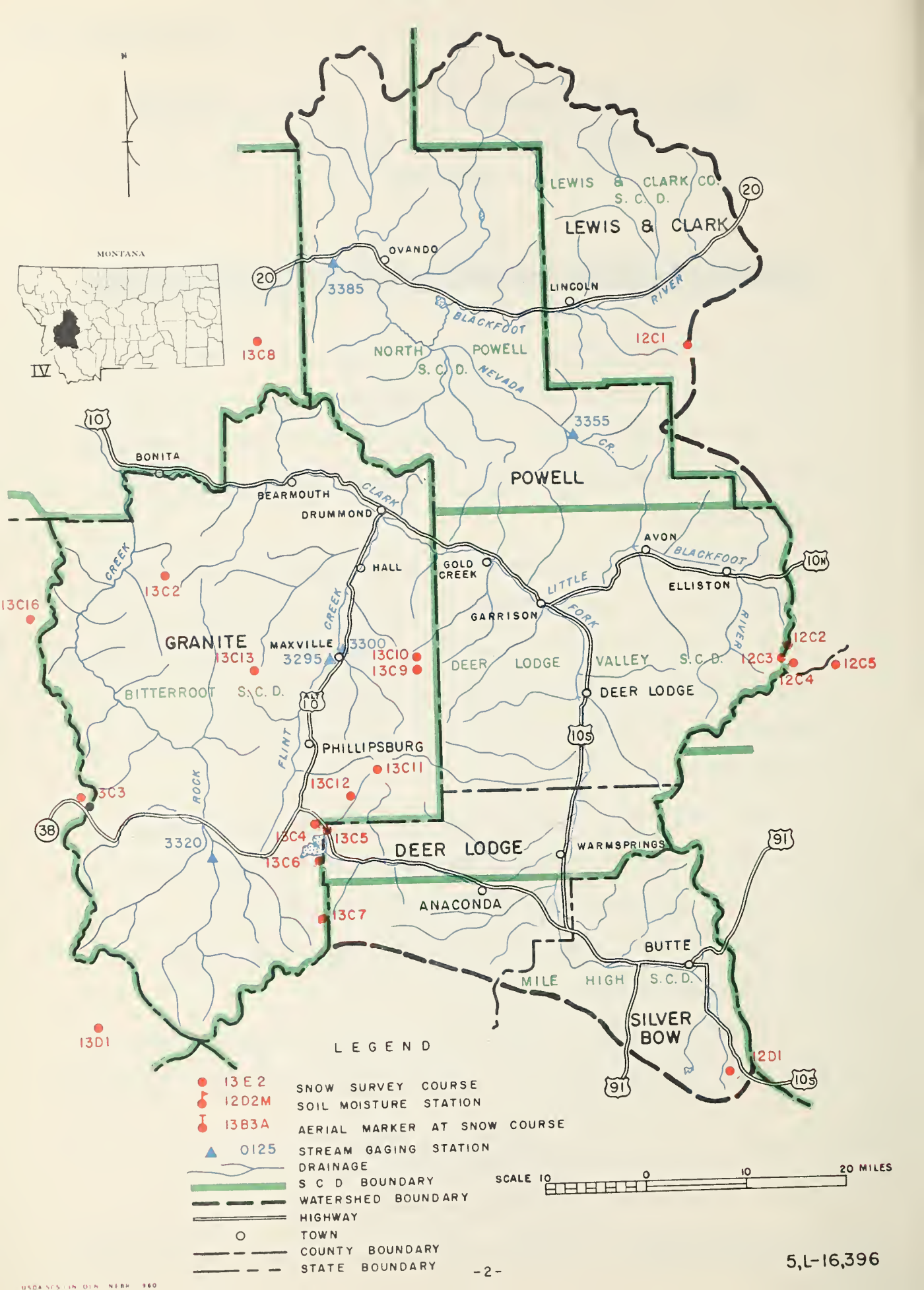
THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,396.1



5,L-16,396

USDA SCS-SN-DEN-NEBR 960

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1960 - WATERSHED IV

(1000 Acre Feet)

FORECAST POINT		FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED+	
NO.	NAME				LAST YEAR	NORMAL
	FLINT CREEK					
3295	Maxville (at)	Apr-Sept	29.8	64	51.5#	46.4
		Apr-July	22.1	63	37.8#	35.4
		Apr-June	16.8	60	27.3#	28.0
	BOULDER CREEK					
3300	Maxville (at)	Apr-Sept	24.2	86	26.8#	28.2
		Apr-July	21.9	85	24.6#	25.8
		Apr-June	18.2	85	20.9#	21.4
	MIDDLE FORK ROCK CREEK					
3320	Philipsburg (near)	Apr-Sept	62.4	78	72.1#	80.2
		Apr-July	58.3	80	65.0#	72.1
		Apr-June	46.2	78	55.5#	59.4
	CLARK FORK RIVER					
3404	Milltown (above) (14)	Apr-Sept	533	65	696	815
		Apr-July	452	63	610	716
		Apr-June	388	64	516	609

(14) Difference in observed flow, Clark Fork above Missoula and Blackfoot at Bonner.
(+) Provisional data furnished by U. S. Geological Survey.
(#) 1958 data; 1959 data not available.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1960

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED		
			THIS YEAR	LAST YEAR	NORMAL
3250	Georgetown Lake	31.0	28.8	23.2	21.6
3365	Nevada Creek	12.6	-	3.2	8.1

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

SNOW SURVEY DATA

AS OF APRIL 1, 1960 — WATERSHED IV

SNOW COURSE NO.	NAME	ELEVATION	CURRENT INFORMATION: DATE OF SURVEY	CURRENT INFORMATION: SNOW DEPTH (Inches)	CURRENT INFORMATION: WATER CONTENT (Inches)	PAST RECORD: WATER CONTENT (Inches) LAST YEAR	PAST RECORD: WATER CONTENT (Inches) AVERAGE	YEARS OF RECORD
13C16	Ambrose	6475	3/28	29	8.9	-	-	-
13C13	Black Pine	7100	3/23	35	10.2	14.9	-	-
12C5	Chessman Reservoir	6200	3/31	6	1.6	6.0	5.1	15
13C9	El Dorado Mine	7800	3/25	56	18.6	23.3	22.6	6
13C11	Fred Burr Pass	8000	3/22	58	20.4	29.9	-	-
13C10	Gold Creek Lake	7200	3/25	38	11.2	17.8	17.7	5
13C4	Intergaard	6450	4/1	0	0	8.4	8.1	12
13C8	Lubrecht Forest #6	4040	4/1	0	0	2.2	3.7	7
12D1	Pipestone Pass	7200	3/31	19	5.6	6.2	6.0	15
13C12	Red Lion	7000	3/22	40	12.1	18.2	-	-
13C3	Skalkaho Summit	7259	3/23	55	18.0	28.4	28.2	15
13C2	Slide Rock Mountain	7100	3/24	38	11.8	15.7	15.9	15
13C5	Southern Cross	6500	4/1	11	3.0	6.8	6.1	12
12C1	Stemple Pass	6900	4/1	29	8.2	15.1	11.0	15
13C7	Storm Lake	7780	3/22	38	11.3	15.6	15.6	15
13C6	Stuart Mill	6500	4/1	16	4.1	7.7	7.1	12
12C2	Ten Mile, Lower	6250	4/3	13	4.1	7.9	7.2	14
12C3	Ten Mile, Middle	6800	4/2	29	9.1	11.8	11.3	15
12C4	Ten Mile, Upper	8000	4/2	37	12.0	16.1	14.4	15

NOTE - ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-195 PERIOD.

5.L-16.395.2

WATER SUPPLY OUTLOOK

BITTERROOT RIVER BASIN

MONTANA

AS OF:

APRIL 1, 1960

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The 1960 Water Supply Outlook for the Bitterroot Valley is only FAIR. Snow Survey measurements made on or about April first indicate this year's snow-pack is 28 percent less than last year and only 66 percent of the 1943-57 average.

The Bitterroot River at Darby is forecast to flow 412,000 acre feet of water during the April-September period, or 70 percent average. Fall precipitation was above average; base flow in the streams during the fall and winter months was high. This combination should produce a higher streamflow than is indicated by the snow-pack.

Soil moisture is extremely high this spring.

Blodgett Creek is forecast to produce the best water supply in the Valley. Burnt Fork Creek is forecast to flow between 60 and 50 percent average.

Forecast figures for the Bitterroot Valley streams are shown on Page 3 of this report.

Reservoir storage data for Como Lake and West Fork Bitterroot Reservoir for comparison with other years are not available at this time.

Report Prepared by

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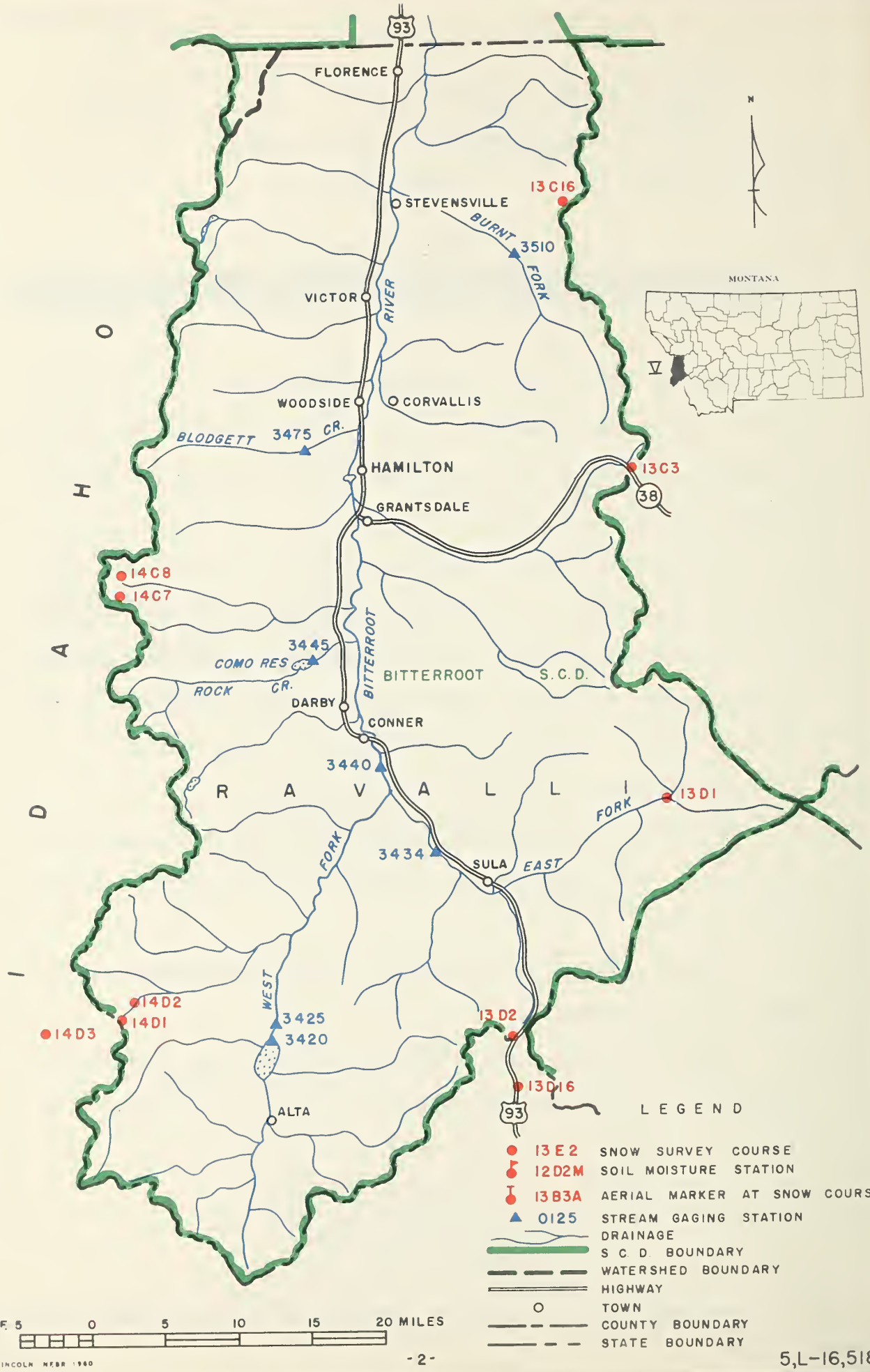
THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,518.1


93
FLORENCE
STEVENSVILLE
13C16
BURNT FORK
3510
VICTOR
RIVER
MONTANA
WOODSIDE
CORVALLIS
BLODGETT
3475 CR.
HAMILTON
13C3
38
GRANTSDALE
14C8
14C7
3445
COMO RES
ROCK CR.
BITTERROOT
BITTERROOT S.C.D.
DARBY
CONNER
3440
RAVALLI
13D1
FORK
3434
SULA
EAST FORK
WEST FORK
14D2
14D1
14D3
3425
3420
13D2
13D16
ALTA
93
LEGEND
13E2 SNOW SURVEY COURSE
12D2M SOIL MOISTURE STATION
13B3A AERIAL MARKER AT SNOW COURSE
0125 STREAM GAGING STATION
DRAINAGE
S.C.D. BOUNDARY
WATERSHED BOUNDARY
HIGHWAY
TOWN
COUNTY BOUNDARY
STATE BOUNDARY
SCALE 5 0 5 10 15 20 MILES
USDA SCS LINCOLN NEBR 1960

5,L-16,518.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1960 - WATERSHED V

(1000 Acre Feet)

FORECAST POINT		FORECAST	FORECAST	%	MEASURED +	
NO.	NAME	PERIOD	THIS YEAR	NORMAL	LAST YEAR	NORMAL
	WEST FORK BITTERROOT RIVER					
3425	Conner (near) (15)	Apr-Sept	96.8	55	193	176
		Apr-July	86.7	53	181	164
		Apr-June	73.7	50	166	147
	BITTERROOT RIVER					
3440	Darby (near)	Apr-Sept	412	70	593	587
		Apr-July	374	68	545	547
		Apr-June	301	63	480	477
	BLODGETT CREEK					
3475	Corvallis (near)	Apr-Sept	43.1	92	46.5	46.7
		Apr-July	38.8	87	43.6	44.4
		Apr-June	32.3	85	37.1	37.9
	BURNT FORK CREEK					
3510	Stevensville (near)	Apr-Sept	18.9	60	25.5	31.2
		Apr-July	15.7	56	22.2	28.0
		Apr-June	11.3	50	18.8	23.1

(15) Observed flow plus change in storage in West Fork Bitterroot River Reservoir.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED		
			THIS YEAR	LAST YEAR	NORMAL

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

SNOW SURVEY DATA

AS OF APRIL 1, 1960 WATERSHED V

SNOW COURSE NO.	SNOW COURSE NAME	ELEVATION	CURRENT INFORMATION: DATE OF SURVEY	CURRENT INFORMATION: SNOW DEPTH (Inches)	CURRENT INFORMATION: WATER CONTENT (Inches)	PAST RECORD: WATER CONTENT (Inches) LAST YEAR	PAST RECORD: WATER CONTENT (Inches) AVERAGE	YEARS OF RECORD
13C16	Ambrose	6475	3/28	29	8.9	-	-	-
13D1	East Fork R. S.	5400	3/31	16	4.4	7.5	7.1	15
13D2	Gibbons Pass	7100	3/31	52	16.6	23.5	25.7	15
14D3	Kit Carson	4700	3/30	22	6.9	9.2	9.0	15
14C5	Lolo Pass	5230	3/24	67	24.8	32.0	36.7	14
14C7	Lost Horse	5940	3/29	68	24.4	-	-	-
13D16	Moose Creek	6200	3/25	39	12.7	14.5	18.3	15
14D2	Nez Perce Camp	5580	3/30	36	11.2	14.1	15.5	15
14D1	Nez Perce Pass	6575	3/30	40	11.1	17.4	19.7	15
14C6	Powell R. S.	4230	3/24	35	12.0	11.4	-	-
14C4	Savage Pass	6600	3/25	60	21.2	29.4	30.3	14
13C3	Skalkaho Summit	7259	3/23	55	18.0	28.4	28.2	15
14C8	Twin Lakes	6510	3/29	87	32.8	-	-	-

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS LINCOLN NEBR 960

5,L-16,395.2

WATER SUPPLY OUTLOOK

MARIAS, TETON, & SUN RIVER BASINS

MONTANA

AS OF:

APRIL 1, 1960

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The 1960 Water Supply Outlook for the Marias, Teton and Sun River basins is FAIR to POOR.

Snow Surveys made at eleven (11) snow courses in the headwaters of these river basins on or about April first indicate that this year's snow-pack is 53 percent of last year's and only 50 percent of the 1943-57 average. Warm weather during the last two weeks of March removed most of the low elevation snow.

Fall precipitation was above normal and soil beneath the snow-pack and the soil in the valleys is well saturated. This should produce more than usual runoff. Base flow has been exceptionally high all winter.

Streamflow forecasts, comparisons with last year and averages are shown in detail on Page 3 of this report.

Reservoir storage is GOOD for the first of April.

The Sun River above Gibson Reservoir is forecast to flow 448,000 acre feet from April through September, or only 59 percent of last year and 78 percent of the 1943-57 average flow.

The Marias River is forecast to flow 475,000 acre feet of water during the April-September period, or 72 percent average.

Report Prepared by

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THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,502.1

LEGEND

- 13E2 SNOW SURVEY COURSE
- 12D2M SOIL MOISTURE STATION
- 13B3A AERIAL MARKER AT SNOW COURSE
- 0125 STREAM GAGING STATION
- DRAINAGE
- S C D BOUNDARY
- WATERSHED BOUNDARY
- HIGHWAY
- TOWN
- COUNTY BOUNDARY
- STATE BOUNDARY

SCALE 10 0 10 20 30 40 MILES

5,L-16,502.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1960 - WATERSHED VI

(1000 Acre Feet)

FORECAST POINT		FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED +	
NO.	NAME				LAST YEAR	NORMAL
	MARIAS RIVER					
0995	Shelby (near)	Apr-Sept	475	72	464#	659
		Apr-July	444	74	424#	605
	N.FORK OF N.FORK SUN					
0785	Augusta (near)	Apr-Sept	195	82	293	239
		Apr-July	182	82	271	222
	SUN RIVER					
0786	Gibson Dam (at)	Apr-Sept	448	78	749	574
		Apr-July	410	78	689	526

(#) 1958 data; 1959 data not available.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1960

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED		
			THIS YEAR	LAST YEAR	NORMAL
1013	Tiber	1316.0	666.3	696.5	-
0955	Lake Francis	112.0	-	96.6	96.0
0805	Pishkun	32.0	21.6	19.4	18.6
0795	Gibson	105.0	79.5	61.9	66.4
0820	Willow Creek	32.3	18.5	28.7	20.2
0940	Swift	30.0	-	30.1	24.7

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

USDA SCS-LINCOLN, NEBR. 1960

5,L-16,395.1

SNOW SURVEY DATA

AS OF APRIL 1, 1960

WATERSHED VI

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS OF RECORD
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE	
12B8	Benchmark	5500	3/29	9	3.7	8.8	11.2	9
12B6	Cabin Creek	5400	4/3	7	3.4	10.1	7.5	9
12B9	Five Bull	5600	3/29	6	2.0	8.5	8.4	9
12A1	Freight Creek	6000	3/28	28	8.8	20.4	18.6	10
12B5	Gates Park	5300	4/3	17	6.3	13.9	11.7	9
12B7	Goat Mountain	7000	3/31	26	6.0	15.4	12.4	15
13A5M	Marias Pass	5250	4/2	37	12.5	21.1	20.3	15
12B2	Waldron Creek	5600	3/28	0	0	7.7	8.4	10
12B1	West Fork	6000	3/28	21	8.6	16.8	19.4	10
12B4	Wrong Creek	5700	4/3	26	10.3	19.7	16.8	9
12B3	Wrong Ridge	6800	4/3	46	17.3	26.1	24.2	9

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS-LINCOLN NEBR 1960

5,L-16,395.2

WATER SUPPLY OUTLOOK

MISSOURI RIVER (MAIN STEM) BASIN

MONTANA

AS OF:

APRIL 1, 1960

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The 1960 Water Supply Outlook for the Missouri Main Stem from Toston to Fort Peck is forecast at 80 percent of the 1943-57 average flow. This forecast is only 5 to 10 percent less than last year's flow.

Detail forecast data is listed on Page 3 of this report for the major stream gaging stations along the river.

Small unmeasured streams may not reflect this high percentage of flow, due to the warm weather that melted much of the low elevation snow. These small streams should flow about 35 percent less water than last season.

Generally, reservoir storage is GOOD.

Soil moisture is high for the first of April.

Report Prepared by

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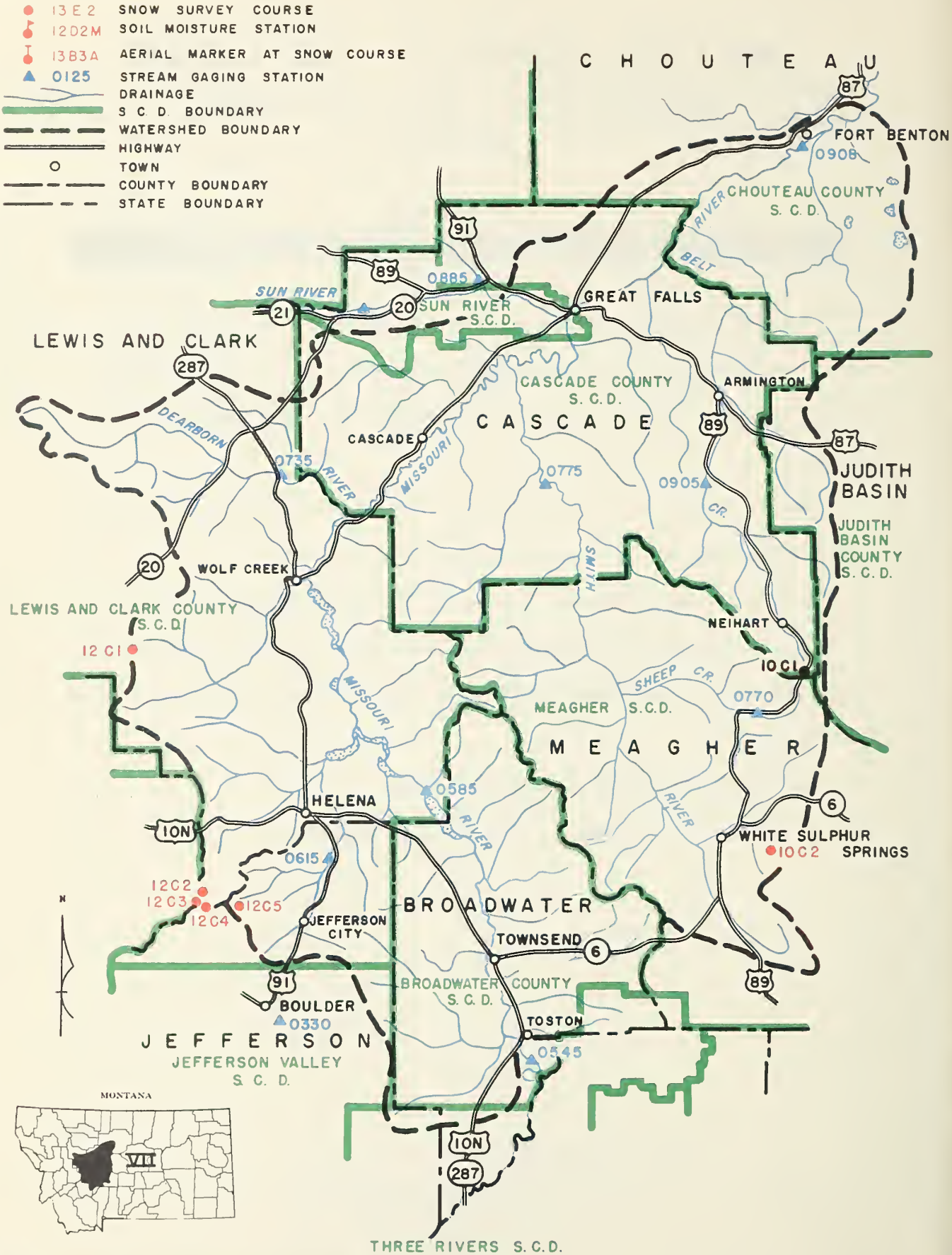
THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,400.1


LEGEND
13E2 SNOW SURVEY COURSE
12D2M SOIL MOISTURE STATION
13B3A AERIAL MARKER AT SNOW COURSE
0125 STREAM GAGING STATION
DRAINAGE
S C D. BOUNDARY
WATERSHED BOUNDARY
HIGHWAY
TOWN
COUNTY BOUNDARY
STATE BOUNDARY
CHOUTEAU
FORT BENTON
0908
CHOUTEAU COUNTY S. C. D.
RIVER
BELT
GREAT FALLS
0885
SUN RIVER
SUN RIVER S.C.D.
LEWIS AND CLARK
CASCADE COUNTY S. C. D.
CASCADE
ARMINGTON
DEARBORN
0735
RIVER
MISSOURI
0775
0905
CR.
JUDITH BASIN
JUDITH BASIN COUNTY S. C. D.
WOLF CREEK
HILLS
LEWIS AND CLARK COUNTY S. C. D.
12C1
NEIHART
10C1
SHEEP CR.
0770
MEAGHER S.C.D.
MEAGHER
MISSOURI
HELENA
0585
RIVER
WHITE SULPHUR SPRINGS
10C2
0615
12C2
12C3
12C4
12C5
JEFFERSON CITY
BROADWATER
TOWNSEND
BROADWATER COUNTY S. C. D.
BOULDER
0330
TOSTON
0545
JEFFERSON
JEFFERSON VALLEY S. C. D.
MONTANA
VII
THREE RIVERS S. C. D.
SCALE 10 0 10 20 30 40 MILES

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1960 - WATERSHED VII

(1000 Acre Feet)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED + LAST YEAR	MEASURED + NORMAL
	MISSOURI RIVER					
0545	Toston (at) (3)	Apr-Sept	1896	81	1991	2342
		Apr-July	1649	81	1726	2030
0908	Fort Benton (at) (5)	Apr-Sept	2955	82	3138	3599
		Apr-July	2526	82	2654	3076
1095	Virgelle (at) (6)	Apr-Sept	3542	81	4001	4393
		Apr-July	3071	81	3431	3803
1150	Zortman (near) (6)	Apr-Sept	3895	81	4574	4806
		Apr-July	3359	81	3919	4143
1320	Ft. Peck Dam (below)(7)	Apr-Sept	3807	80	4085	4761
		Apr-July	3352	80	3588	4181
1770	Wolf Point (near) (7)	Apr-Sept	4169	79	4264	5261
		Apr-July	3696	79	3741	4652
3300	Williston, N. D. (8)	Apr-Sept	8973	71	10729	12562
		Apr-July	7878	71	10136	11101
	PRICKLY PEAR CREEK					
0615	Clancy (near)	Apr-Sept	24.7	103	18.1	23.9
		Apr-July	21.2	101	15.9	20.8

(3) Observed flow plus change in storage in Hebgen and Ennis Lakes.
(5) Observed flow plus change in storage in Canyon Ferry.
(6) Observed flow plus change in storage in Canyon Ferry and Tiber Reservoirs.
(7) Observed flow plus change in storage in Canyon Ferry, Tiber and Fort Peck Reservoirs.
(8) Observed flow plus change in storage in Fort Peck, Canyon Ferry, Tiber, Buffalo Bill and Boysen Reservoirs.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1960

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED THIS YEAR	MEASURED LAST YEAR	MEASURED NORMAL
0585	Canyon Ferry	2043.0	1774.0	1774.0	1328.0
0645	Lake Helena	10.4	7.6	7.6	5.3
0660	Holter Lake	81.9	51.8	51.8	54.3
0650	Hauser Lk. & Lk.Helena	61.9	53.6	53.6	43.8
1315	Fort Peck	19410.0	11360.0	9637.0	11606.0

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

USDA-SCS-LINCOLN, NEBR 1960

5,L-16,395.1

SNOW SURVEY DATA

AS OF APRIL 1, 1960

WATERSHED VII

SNOW COURSE NO.	SNOW COURSE NAME	ELEVATION	CURRENT INFORMATION: DATE OF SURVEY	CURRENT INFORMATION: SNOW DEPTH (Inches)	CURRENT INFORMATION: WATER CONTENT (Inches)	PAST RECORD: WATER CONTENT (Inches) LAST YEAR	PAST RECORD: WATER CONTENT (Inches) AVERAGE	YEARS OF RECORD
12C5	Chessman Reservoir	6200	3/31	6	1.6	6.0	5.1	15
10C2	Grasshopper	7000	3/31	16	3.6	6.4	5.6	15
10C1	Kings Hill	7950	4/1	42	11.9	16.6	13.8	15
12C1	Stemple Pass	6900	4/1	29	8.2	15.1	11.0	15
12C2	Ten Mile, Lower	6250	4/3	13	4.1	7.9	7.2	14
12C3	Ten Mile, Middle	6800	4/2	29	9.1	11.8	11.3	15
12C4	Ten Mile, Upper	8000	4/2	37	12.0	16.1	14.4	15

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS LINCOLN NEBR 1960

5,L-16,395.2

WATER SUPPLY OUTLOOK

BEAVERHEAD, & JEFFERSON RIVER BASINS

MONTANA

AS OF:

APRIL 1, 1960

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

Snow Survey measurements made in the Beaverhead and Jefferson River basin on or about April first indicate the water stored in the snow-pack is 72 percent of last year and 63 percent of the 1943-57 average. A decrease in water content from March first was noted at about one-third of the snow courses in the drainage.

Streamflow is forecast to be about 30 percent below average in the upper reaches of the Beaverhead drainage and 10 percent below average for the Big Hole and Jefferson Rivers. Fall precipitation was above average; base flow in the streams during the fall and winter months was high. This combination should produce a higher streamflow than is indicated by the snow-pack. Streamflow is expected to be slightly higher than last year; however, if the current trend of above normal temperatures continues, the majority of the runoff will occur much earlier than last year. Below normal precipitation in the summer months could result in a short water supply during the heavy irrigation period.

Report Prepared by

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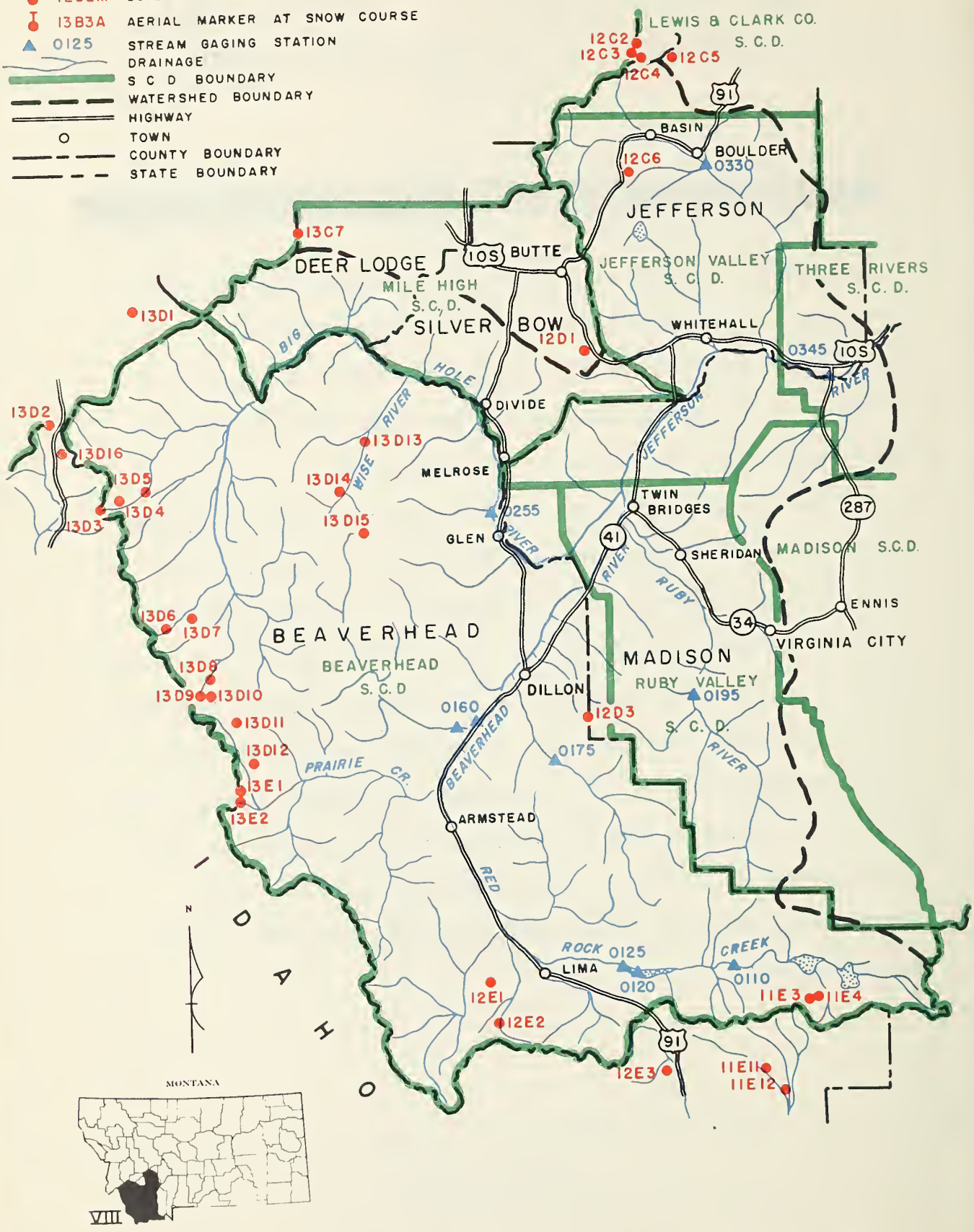
THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,394.1


LEGEND
13E2 SNOW SURVEY COURSE
12D2M SOIL MOISTURE STATION
13B3A AERIAL MARKER AT SNOW COURSE
0125 STREAM GAGING STATION
DRAINAGE
S C D BOUNDARY
WATERSHED BOUNDARY
HIGHWAY
TOWN
COUNTY BOUNDARY
STATE BOUNDARY
LEWIS & CLARK CO. S. C. D.
12C2
12C3
12C4
12C5
91
BASIN
BOULDER
0330
12C6
JEFFERSON
13C7
DEER LODGE
10S
BUTTE
JEFFERSON VALLEY S. C. D.
THREE RIVERS S. C. D.
MILE HIGH S. C. D.
13D1
SILVER BOW
12D1
WHITEHALL
0345
10S
BIG HOLE RIVER
DIVIDE
JEFFERSON RIVER
13D2
13D16
13D5
13D4
13D3
13D13
13D14
13D15
WISE RIVER
MELROSE
0255
TWIN BRIDGES
287
GLEN
41
SHERIDAN
MADISON S.C.D.
RUBY RIVER
ENNIS
34
VIRGINIA CITY
13D6
13D7
13D8
13D9
13D10
13D11
13D12
13E1
13E2
BEAVERHEAD
BEAVERHEAD S. C. D
DILLON
MADISON
RUBY VALLEY
0195
S. C. D.
0160
12D3
0175
PRAIRIE CR.
BEAVERHEAD RIVER
ARMSTEAD
RED
ROCK
0125
CREEK
LIMA
0120
0110
11E3
11E4
12E1
12E2
91
12E3
11E11
11E12
IDAHO
N
MONTANA
VIII
SCALE 10 0 10 20 30 40 MILES
USDA SCS LINCOLN NEBR 960

5,L-16,394.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1960 - WATERSHED VIII

(1000 Acre Feet)

FORECAST POINT		FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED +	
NO.	NAME				LAST YEAR	NORMAL
	RED ROCK RIVER					
0110	Kennedy Ranch (at)	May-Sept	32.9	60	34.1	54.9
		May-July	29.5	60	28.8	49.1
0125	Monida (near) (1)	Apr-Sept	59.6	69	53.6	86.4
		Apr-July	55.8	68	49.1	82.2
	BEAVERHEAD RIVER					
0160	Barratts (at) (1)	Apr-Sept	121	70	90	173
		Apr-July	107	69	68	155
	BIG HOLE RIVER					
0255	Melrose (near)	Apr-Sept	701	91	644	770
		Apr-July	657	92	592	714
	BOULDER RIVER					
0330	Boulder (near)	Apr-Sept	72.7	91	67.5	79.9
		Apr-July	69.7	92	64.8	76.5
	JEFFERSON RIVER					
0345	Sappington (at)	Apr-Sept	977	91	835	1074
		Apr-July	880	92	750	958

(1) Observed flow plus change in storage in Lima Reservoir.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1960

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED		
			THIS YEAR	LAST YEAR	NORMAL
0120	Lima	84.0	28.9	30.4	33.9
	Ruby	38.8	32.4	-	25.9

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

SNOW SURVEY DATA

AS OF APRIL 1, 1960

WATERSHED VIII

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
						WATER CONTENT (Inches)		
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	LAST YEAR	AVERAGE	YEARS OF RECORD
13D14	Anderson Meadow	7000	3/22	19	5.1	6.6	9.2	10
13D4	Below Big Hole Pass	6900	3/23	37	9.9	14.2	15.9	10
13D3	Big Hole Pass	7240	3/23	40	10.7	15.8	19.0	10
13D10	Bloody Dick	7600	3/24	30	8.3	10.8	12.7	10
11E11	Blue Ledge Mine	6700	3/29	31	8.4	12.2	17.2	15
12E3	Camp Creek	6800	3/30	21	5.8	8.5	10.4	15
12C5	Chessman Reservoir	6200	3/31	6	1.6	6.0	5.1	15
13D5	East Boundary	6700	3/23	16	4.2	8.1	9.5	10
13D15	Elk Horn	8450	3/30	26	6.6	10.3	10.7	15
13D2	Gibbons Pass	7100	3/31	52	16.6	23.5	25.7	15
13D9	Gold Stone	8100	3/24	38	11.3	14.0	16.7	10
13D8	Jahnke Creek	7340	3/24	29	8.1	10.0	12.5	10
11E12	Kilgore	6200	3/29	20	6.4	8.8	10.3	15
11E4	Lakeview Canyon	6930	3/31	26	7.3	8.3	10.9	10
11E3	Lakeview Ridge	7400	3/31	22	5.4	6.6	10.0	10
13E1	Lemhi Pass	7480	3/27	23	6.8	8.7	10.0	10
12E2	Limekiln	6950	3/28	0	0	0	1.7	10
13D6	Miner Forks	7300	3/25	35	9.2	13.2	13.8	10
13D7	Miner Lake	6720	3/25	26	6.5	10.8	9.1	13
13D16	Moose Creek	6200	3/25	39	12.7	14.5	18.3	15
12C6	Picnic Grounds	6500	4/1	10	2.6	4.5	4.5	12
12D1	Pipestone Pass	7200	3/31	19	5.6	6.2	6.0	15
13D11	Selway Junction	6800	3/29	19	5.6	7.0	9.7	10
13C7	Storm Lake	7780	3/22	38	11.3	15.6	15.6	15
12C2	Ten Mile, Lower	6250	4/3	13	4.1	7.9	7.2	14
12C3	Ten Mile, Middle	6800	4/2	29	9.1	11.8	11.3	15
12C4	Ten Mile, Upper	8000	4/2	37	12.0	16.1	14.4	15
13D12	Terrell Creek	6650	3/29	2	0.9	5.1	5.1	10
13E2	Trail Creek	7090	3/27	26	7.8	7.8	9.4	10
11E1	White Pine Ridge	8850	3/28	12	3.0	3.6	6.4	10
13D13	Wise River	6300	3/22	15	3.8	4.4	5.9	10

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS LINCOLN NEBR 1960

5,L-16,395.2

WATER SUPPLY OUTLOOK

MADISON, & GALLATIN RIVER BASINS

MONTANA

AS OF:

APRIL 1, 1960

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for the Madison and Gallatin drainages is only FAIR. Snow Surveys made near the first of April indicate that water stored in the snow is about 30 percent less than last year and 62 percent of the 1943-57 average.

The Madison River near West Yellowstone is forecast to flow 153,000 acre feet during the April through September period, or 20 percent less than last year. The West Gallatin River near Gateway is expected to produce only 75 percent of last year during the April through September period. Hyalite Creek has the best outlook for near normal runoff with 34,700 acre feet forecast for the April through September period.

Soil moisture is much above normal with most soil in the area being almost saturated.

Report Prepared by

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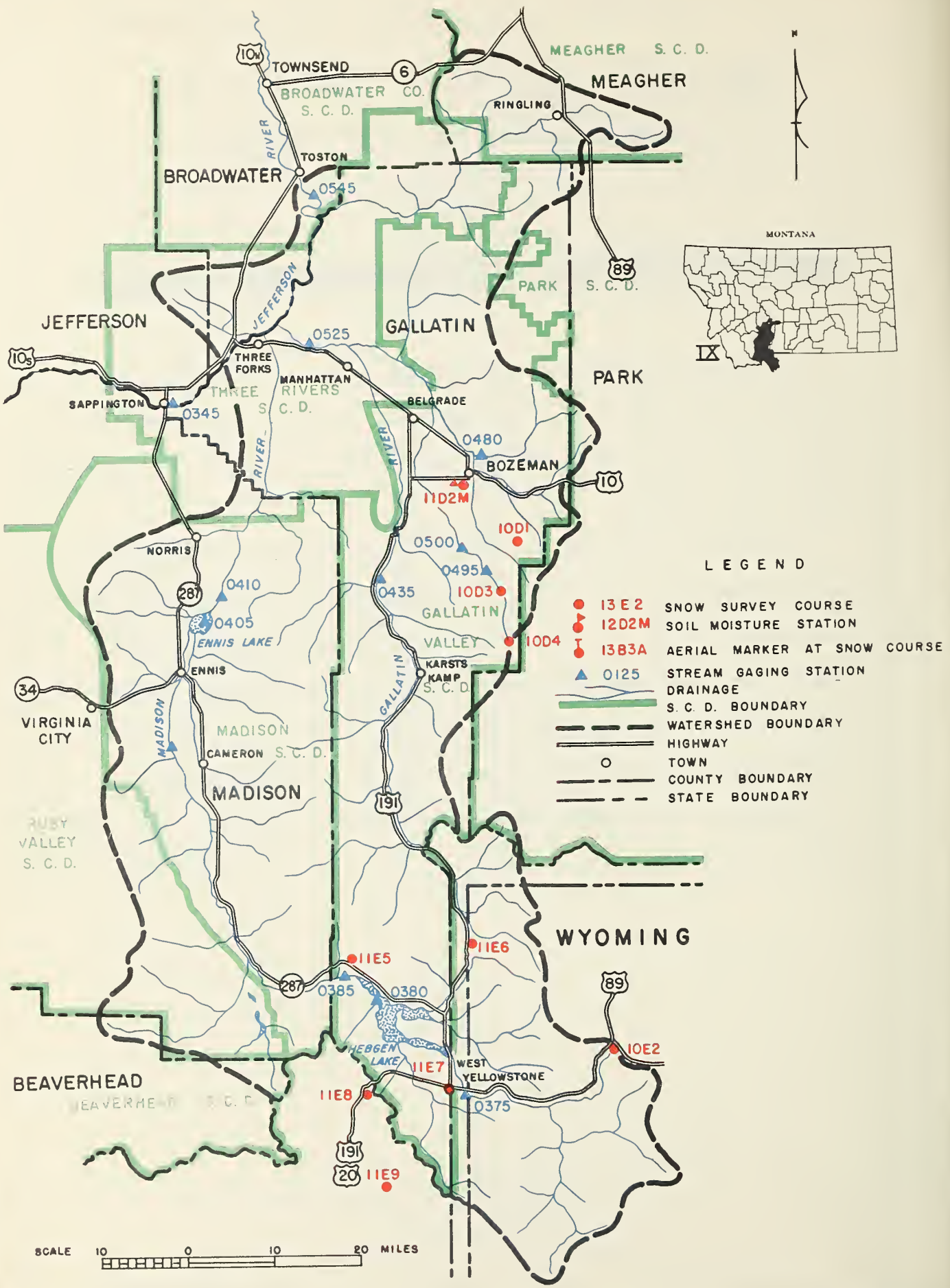
THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,521.1



USDA-SCS-LINCOLN, NEBR. 1960

5,L-16,521.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1960 - WATERSHED IX

(1000 Acre Feet)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED + LAST YEAR	MEASURED + NORMAL
	MADISON RIVER					
0375	West Yellowstone (nr)	Apr-Sept	153	71	192	216
		Apr-July	112	68	137	165
0385	Grayling (near) (2)	Apr-Sept	318	71	366	448
		Apr-July	242	68	271	357
0410	McAllister (near) (3)	Apr-Sept	567	75	679	756
		Apr-July	444	72	526	613
	WEST GALLATIN RIVER					
0435	Gateway (near)	Apr-Sept	377	82	506	459
		Apr-July	320	81	418	395
0500	Hyalite Cr. R.S.(at)(4)	Apr-Sept	34.7	96	44.6	36.1
		Apr-July	29.2	94	39.1	31.0
	EAST GALLATIN RIVER					
0480	Bozeman (at)	Apr-Sept	34.7	75	50.6	46.4
		Apr-July	30.8	75	44.3	40.7
	GALLATIN RIVER					
0525	Logan (at)	Apr-Sept	366	74	514	492
		Apr-July	304	72	441	422

(2) Observed flow plus change in storage in Hebgen Lake.
(3) Observed flow plus change in storage in Hebgen and Ennis Lakes.
(4) Observed flow plus change in storage in Hyalite Reservoir.
(+) Provisional data furnished by U. S. Geological Survey.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1960

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED THIS YEAR	MEASURED LAST YEAR	MEASURED NORMAL
0380	Hebgen Lake	345.0	8.9	167.6	208.3
0405	Ennis Lake	41.0	38.2	38.4	35.3
0500	Middle Creek	8.0	4.4	4.3	4.0

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

USDA SCS LINCOLN NEBR 1960

5,L-16,395.1

SNOW SURVEY DATA

AS OF APRIL 1, 1960

WATERSHED IX

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS OF RECORD
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE	
11E9	Big Springs	6500	3/31	34	11.0	16.9	23.5	15
10D4	Devil's Slide	8100	4/2	77	23.0	28.0	21.2	15
11E5	Hebgen	6550	3/23	27	7.6	11.3	12.6	15
10D3	Hood Meadow	6600	4/1	28	7.9	11.4	9.8	15
11E10	Island Park	6315	3/31	30	8.9	13.7	17.8	15
10D1	New World	6700	3/30	30	9.2	13.4	10.6	15
10E2	Norris Basin	7500	3/31	25	6.6	8.5	10.3	12
10D10	Sacajawea	6550	3/24	39	12.5	-	-	-
11E6	Twenty-One Mile	7150	3/25	30	8.8	15.8	19.2	15
11E8	Valley View	6500	3/31	32	8.0	13.8	16.4	15
11E7	West Yellowstone	6700	3/24	19	5.4	9.2	12.7	15

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS-LINCOLN NEBR '960

5,L-16,395.2

WATER SUPPLY OUTLOOK

JUDITH, & MUSSELSHELL RIVER BASINS

MONTANA

AS OF:

APRIL 1, 1960

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for the Judith and Musselshell River basins is GOOD. Snow Surveys made near the first of April indicate that water stored in the snow-pack is 74 percent of last year and is 86 percent of the 1943-57 average.

Streamflow in the Judith and Musselshell drainages is forecast to be near average during the April through September period. Above normal fall precipitation, high flows during the fall and winter months, and above normal soil moisture should produce more runoff than would normally be expected from the water presently stored in the snow-pack.

Report Prepared by

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THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,516.1

USDA-SCS-LINCOLN NEBR 1960

5,L-16,516.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1960 - WATERSHED X

(1000 Acre Feet)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED + LAST YEAR	MEASURED + NORMAL
	MUSSELSHELL RIVER					
	South Fork					
1185	Martinsdale (above)	Apr-Sept	54.7	102	25.6#	53.6
		Apr-July	52.8	103	24.2#	51.4
1205	Harlowton (at) (9)	Apr-Sept	85	102	34.5#	83.0
		Apr-July	84	102	33.9#	82.0
	MISSOURI RIVER					
1095	Virgelle (at) (6)	Apr-Sept	3542	81	4001	4393
		Apr-July	3071	81	3431	3803
1150	Zortman (near) (6)	Apr-Sept	3895	81	4574	4806
		Apr-July	3359	81	3919	4143

(9) Observed flow plus change in storage in Durand Reservoir and Martinsdale Reservoirs.
(6) Observed flow plus change in storage in Canyon Ferry and Tiber Reservoirs.
(+) Provisional data furnished by U. S. Geological Survey.
(#) 1958 data; 1959 data not available.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1960

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED THIS YEAR	MEASURED LAST YEAR	MEASURED NORMAL
1165	Durand	7.0	-	5.6	5.3
1105	Ackley	5.8	4.1	-	4.3

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

SNOW SURVEY DATA

AS OF APRIL 1, 1960 WATERSHED X

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS OF RECORD
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE	
9C1	Crystal Lake	6100	3/15	50	14.4	16.8	11.8	15
10C2	Grasshopper	7000	3/31	16	3.6	6.4	5.6	15
10C1	Kings Hill	7950	4/1	42	11.9	16.6	13.8	15
10C3	Porcupine	6500	4/4	18	5.0	7.3	6.8	15
9A1	Rocky Boy	5200	3/31	5	2.1	3.2	5.2	15

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS-LINCOLN NEBR 1960

5,L-16,395.2

WATER SUPPLY OUTLOOK

UPPER YELLOWSTONE RIVER BASIN

MONTANA

AS OF:

APRIL 1, 1960

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

The Water Supply Outlook for the Upper Yellowstone River basin is only FAIR. Snow Survey measurements made near the first of April indicate the water stored in the snow-pack is 63 percent of last year and 65 percent of the 1943-57 average.

The Yellowstone River at Corwin Springs is forecast to flow 1,312,000 acre feet or about 25 percent less than last year during the April through September period.

The Clarks Fork River is expected to flow about 35 percent less than last year and the Stillwater River about 20 percent below average. The Shields River is forecast to flow about 40 percent above average. This forecast is based on the above normal fall precipitation, high stream flow during the fall and winter months, and above normal soil moisture.

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THE CONSERVATION OF WATER BEGINS WITH THE SNOW SURVEY

USDA SCS LINCOLN NEBR 1960

5,L-16,510.1

USDA SCS LINCOLN NEBR 1960

5,L-16,510.2

WATER SUPPLY FORECASTS

AS OF APRIL 1, 1960 - WATERSHED XI

(1000 Acre Feet)

FORECAST POINT NO.	FORECAST POINT NAME	FORECAST PERIOD	FORECAST THIS YEAR	% NORMAL	MEASURED + LAST YEAR	MEASURED + NORMAL
	YELLOWSTONE RIVER					
1915	Corwin Springs (at)	Apr-Sept	1312	66	1785	1980
		Apr-July	1059	64	1499	1649
1925	Livingston (near)	Apr-Sept	1448	64	1630#	2252
		Apr-July	1145	61	1368#	1863
2145	Billings (at)	Apr-Sept	2953	69	4094	4261
		Apr-July	2494	68	3608	3657
3090	Miles City (at)(13)	Apr-Sept	4491	67	5238	6707
		Apr-July	3923	67	4731	5884
3295	Sidney (near) (13)	Apr-Sept	4488	65	4760	6921
		Apr-July	3948	64	4393	6137
	SHIELDS RIVER					
1935	Clyde Park (at)	Apr-Sept	158	142	50.0#	111
		Apr-July	143	139	46.6#	103
	ROSEBUD CREEK					
2045	Absarokee (near) (12)	Apr-Sept	239	89	252#	267
		Apr-July	192	89	202#	216
	STILLWATER RIVER					
2050	Absarokee (near) (12)	Apr-Sept	502	81	530#	620
		Apr-July	424	81	445#	523
	CLARKS FORK RIVER					
2075	Chance (at)	Apr-Sept	430	70	648	617
		Apr-July	393	71	601	552
2085	Edgar (at)	Apr-Sept	464	71	652	652
		Apr-July	419	73	589	575
	ROCK CREEK					
2095	Red Lodge (near)	Apr-Sept	103	92	97.5#	112
		Apr-July	79.4	92	75.4#	86.3

(12) Observed flow plus change in storage in Mystic Lake.
(13) Observed flow plus change in storage in Buffalo Bill and Boysen Reservoir.
(+) Provisional data furnished by U. S. Geological Survey.
(#) 1958 data; 1959 data not available.

RESERVOIR STORAGE DATA

AS OF MARCH 31, 1960

(1000 Acre Feet)

NO.	RESERVOIR	USABLE CAPACITY	MEASURED THIS YEAR	MEASURED LAST YEAR	MEASURED NORMAL
2040	Mystic Lake	20.8	5.0	4.2	5.7

NOTE: ALL NORMALS BASED ON 1943-1957 (15 YEAR PERIOD)

SNOW SURVEY DATA

AS OF APRIL 1, 1960 WATERSHED XI

SNOW COURSE			CURRENT INFORMATION			PAST RECORD		
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)		YEARS OF RECORD
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE	
9D1	Camp Senia	7890	3/17	23	5.0	7.0	7.3	15
10E3	Canyon	7500	4/1	32	8.7	15.0	16.0	15
10D7	Cooke City	7400	3/31	20	5.5	9.4	9.5	15
10D5	Crevice Mountain	8400	4/1	18	3.9	8.5	10.5	15
10D4	Devil's Slide	8100	4/2	77	23.0	28.0	21.2	15
10E6	East Entrance	7000	3/31	18	4.8	11.2	13.0	9
10D3	Hood Meadow	6600	4/1	28	7.9	11.4	9.8	15
10D6	Independence	8000	3/16	50	12.2	19.6	20.1	12
10E4	Lake Camp	7850	3/31	28	5.6	9.6	12.8	14
9E1	Lodgepole	8200	3/30	24	6.3	11.8	12.3	13
10E1	Lupine Creek	7300	4/1	23	6.7	9.4	11.9	14
10D1	New World	6700	3/30	30	9.2	13.4	10.6	15
10E2	Norris Basin	7500	3/31	25	6.6	8.5	10.3	12
10C3	Porcupine	6500	4/4	18	5.0	7.3	6.8	15
10D10	Sacajawea	6550	3/24	39	12.5	-	-	-
10E5	Sylvan Pass	7100	3/30	29	8.2	15.9	16.5	14
10E7	Thumb Divide	7900	3/30	43	11.8	19.8	25.8	15

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). "YEARS OF RECORD" INDICATED NUMBER OF YEARS USED IN 1943-1957 PERIOD.

USDA SCS LINCOLN NEBR 1960

5,L-16,395.2

STATUS OF RESERVOIR STORAGE

March 31, 1960

BASIN & STREAM	RESERVOIR	USABLE CAPACITY 1000 A.F.	USABLE STORAGE - 1000 ACRE FEET			
			1960	1959	1943-57 Average	Yrs.
MISSOURI RIVER BASIN - WYOMING						
Shoshone River	Buffalo Bill	380.3	128.0	13.6	220.6	15
Wind River	Boysen	560.0AC	139.6	100.1	426.7**	5
Wind River	Pilot Butte	31.6	26.0	12.1	18.2	15
Bull Creek	Bull Lake	152.0	36.6	45.5	60.1	15
Belle Fourche	Key Hole	190.0AC	14.8	4.7	11.7**	6
MISSOURI RIVER BASIN - NORTH DAKOTA						
Heart River	Lake Tschida	68.7AC	7.5	78.3	65.3**	7
Heart River	E. A. Patterson	5.6AC	5.9	5.8	5.4**	7
Missouri River	Garrison Lake	18100.0AC	5020.9	3965.9	-	-
James River	Jamestown	220.0AC	10.4	11.4	-	-
MISSOURI RIVER BASIN - SOUTH DAKOTA						
Belle Fourche	Belle Fourche	185.2AC	-	58.2	116.9	15
Cheyenne River	Angostura	90.0AC	-	50.6	47.2**	6
Cheyenne River	Deerfield	15.1AC	-	9.3	13.3**	10
Grand River	Shadehill	84.0AC	-	86.0	81.1**	5
Missouri River	Ft. Randall	3800.0AC	3222.0	2979.0	1736.3**	3
Missouri River	Gavins Point	320.0AC	4027.0	306.4	-	-
Missouri River	Oahe	17000.0AC	-	751.0T	-	-
Cheyenne River	Pactola	55.0AC	-	19.4	-	-

** Average for years of record shown in 1943-57 period.
AC Active Capacity; USBR Billings.
T Total Storage.

WYOMING SNOW SURVEYS ABOUT APRIL 1, 1960

No.	Snow Course Name	Elev.	Current Information: Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record: Water Content (In.) Last Year	15-Year Average 1943-57	Years Record Used In Average
LOWER YELLOWSTONE - WIND RIVER								
9F12	Big Warm	8800	3/26	25	7.1	8.9	9.5**	5
9F4	Burroughs Creek	8800	3/28	28	7.8	14.4	15.6**	11
9F10	Dinwoodie	10000	3/29	36	9.2	11.6	13.7**	10
9F9	Dry Creek	9500	3/29	17	4.3	6.8	7.3**	10
9F6	DuNoir	8750	3/26	20	4.9	7.4	10.1	19
9F7	Geyser Creek	8500	3/27	17	3.9	6.6	8.8**	11
9F8	Little Warm	9500	3/27	47	13.7	16.7	18.8**	11
9F14	Sheridan R.S. #2	7500	3/28	18	5.0	6.4	7.3**	5
9F3	T-Cross Ranch	8000	3/28	11	2.9	6.2	8.1	19
#10F9	Togwotee Pass	9600	3/29	74	24.6	32.2	32.1	24
LOWER YELLOWSTONE - POPO AGIE RIVER								
8G2	Blue Ridge	9500	3/23	25	6.9	9.8	13.8	20
8G5	Bruce's Camp	6500	3/24	12	4.3	N.R.		3
9G3	Hobbs Park	10000	3/31	43	12.9	15.7	19.4**	11
9G4	Mosquito Park R.S.	9500	3/31	20	5.7	7.0	8.8**	15
5G1	Sawmill Glade	8500	3/23	25	5.9	9.0	8.6	20
#8G3	South Pass	9000	3/23	37	10.2	11.6	16.4	20
9F11	St. Lawrence R.S.	9000	3/26	13	3.3	6.2	7.6*	16
9G2	Trout Creek	8400	3/31	12	3.2	7.8	6.6**	11
LOWER YELLOWSTONE - OWL CREEK								
+#9F19	Kirwin	11000	4/5	55	16.5E			
8F1	Owl Creek	8700	3/29	28	7.8	5.8	5.9**	10
LOWER YELLOWSTONE - GREYBULL RIVER								
+#9F19	Kirwin	11000	4/5	55	16.5E			
9F3	Timber Creek #2	8800	3/30	16	4.7	3.6	3.4**	11
9F15	Wood River #2	8000	3/30	22	6.3	5.6	5.7*	17
LOWER YELLOWSTONE - SHOSHONE RIVER								
9E4	Carter Mountain	7800	3/31	18	5.2	4.8		3
#10E6	East Entrance	7000	3/31	18	4.8	11.2	12.8**e	11
+9E5	Ishawooa	9200	4/5	133				
#10E5	Sylvan Pass	7100	3/30	29	8.2	15.9	15.9*	21
10F9	Togwotee Pass	9600	3/29	74	24.6	32.2	32.1	24
+9F18	Younts Peak	8500	4/5	89	31.0E			

* Average is for 15 years of data within and adjacent to the 1943-57 period.
** Average of all past data.
# Adjacent drainage.
\+ Aerial stadia marker.
e Partial estimate during the 1943-57 base period; E Estimated Water Content.

WYOMING SNOW SURVEYS ABOUT APRIL 1, 1960

No.	Snow Course Name	Elev.	Current Information: Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record: Water Content (In.) Last Year	15-Year Average 1943-57	Years Record Used In Average
LOWER YELLOWSTONE - NOWOOD CREEK								
#7F1	Bear Trap	8000	3/25	23	6.2			
#7F2	Canyon Creek	7400	3/26	37	10.0			
7E25	Cold Springs Camp	8700	3/24	23	5.8	10.2	8.1**	4
7E24	Medicine Lodge Lake	9500	3/24	38	9.7	13.2	11.7**	4
#7E8	Munkres Pass	9700	4/1	32	8.3	10.4	9.3**	9
#7E27	Onion Gulch	8100	3/25	31	8.3	10.3	9.2**	4
7E7	Tensleep R.S.	8300	3/28	26	7.1	10.2	7.3	22
7E35	Tyrell R.S.	8300	3/28	19	6.5	10.8	8.2**	4
7E26	West Tensleep Lake	9075	3/28	37	9.9	13.9	11.7**	4
LOWER YELLOWSTONE - SHELL CREEK								
7E21	Bald Mountain	9600	3/28	64	20.7	26.4	19.8**	4
#7E20	Beaver Tongue	9200	3/28	59	18.3	25.7	18.8**	4
#7E18	Bone Spring	9200	3/30	55	16.0	21.0	16.9**	4
7E22	Granite Creek Camp	7800	4/1	T	0	5.8	4.3**	4
#7E17	Granite Pass	8950	3/30	52	15.3	21.1	16.6**	4
7E4	Ranger Creek	8800	4/1	25	6.9	11.9	9.0	22
7E23	Shell Creek	9600	4/1	54	13.7	16.6	15.1**	4
LOWER YELLOWSTONE - PORCUPINE CREEK								
7E31	Five Springs Falls	7500	4/1	20	5.4	6.5	5.8**	4
7E30	Medicine Wheel	9000	3/28	50	16.1	23.8	16.0**	4
LOWER YELLOWSTONE - TONGUE RIVER								
#7E20	Beaver Tongue	9200	3/28	59	18.3	25.7	18.8**	4
7E32	Big Goose #2	7700	4/2	26	6.3	10.4	7.9**	4
#7E18	Bone Spring	9200	3/30	55	16.0	21.0	16.9**	4
7E33	Burgess R.S. #2	7900	3/29	30	7.9	11.3	7.8**	4
7E34	Dome Lake #2	8800	4/2	39	9.7	11.6	10.0**e	4
7E14	Gloom Creek	9300	3/31	51	14.8	17.0	12.9**	4
#7E17	Granite Pass	8950	3/30	52	15.3	21.1	16.6**	4
7E11	Sibley Lake	8000	3/31	37	9.0	14.5	10.0**	4
7E12	Sucker Creek	9000	3/31	45	12.4	16.2	12.0**	4
7E10	Steamboat Point	7500	3/31	26	7.6	12.3	7.8**	4
7E13	Wood Rock G.S.	8500	3/29	39	10.6	14.0	10.9**	4
LOWER YELLOWSTONE - POWDER RIVER								
#7F1	Bear Trap	8000	3/25	23	6.2			
#7F2	Canyon Creek	7400	3/26	37	10.0			
+7E36	Cloud's Peak	10000	4/5	57	17.0E			
#7E28	Muddy Creek G.S.	7800	4/1	15	2.4	4.8	4.5**	4
#7E8	Munkres Pass	9700	4/1	32	8.3	10.4	9.3**e	9
#7E27	Onion Gulch	8100	3/25	31	8.3	10.3	9.2**	4
8E5	Soldier Park	8700	3/31	20	5.6	8.6	5.8**	8
7E6	Sour Dough	8500	3/31	24	4.7	8.1	7.3	23

** Average of all past data.
# Adjacent drainage; + Aerial stadia marker.
e Partial estimate during the 1943-57 base period; E Estimated Water Content.

Agencies Cooperating in Collecting Data Contained in this Bulletin

U. S. Forest Service
Region I, Missoula, Montana

U. S. Geological Survey
Helena, Montana

U. S. Army Corps of Engineers
Portland, Oregon
Seattle, Washington
Omaha, Nebraska
Riverdale, N. D.

U. S. Indian Irrigation Service
St. Ignatius, Montana

U. S. Weather Bureau
Helena, Montana

U. S. Fish & Wildlife Service
Red Rock Lakes Refuge
Monida, Montana

U. S. Bureau of Reclamation
Billings, Montana
Boise, Idaho

Montana Power Company
Butte, Montana

Agricultural Experiment Station
North Montana Branch Station
Havre, Montana

Montana State Highway Dept.
East Glacier, Montana

National Park Service
Yellowstone National Park
Glacier National Park

Montana Experiment Station
Montana State College
Bozeman, Montana

Bonneville Power Administration
Portland, Oregon

Montana State School of Forestry
Montana State University
Missoula, Montana

Soil Conservation Service
Montana, Wyoming, Idaho

Soil Conservation Districts
Montana Counties

Johnson Flying Service, Inc.
Missoula, Montana

Water Rights Branch
Dept. of Lands & Forests
Victoria, British Columbia

Department of Northern Affairs
& National Resources
Calgary, Alberta

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COOPERATIVE SNOW SURVEYS

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Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"The Conservation of Water begins with the Snow Survey"